

Scientific Programme

Wednesday, 10 October 2018

		Hot Topic, Hall B
08:00 - 08:45		Hot Topic 1: Hot topics in MS neuropathology
		Chairs
		M. Inglese (New York, US)
		R. Reynolds (London, UK)
08:00 - 08:15	1	Myelocortical multiple sclerosis: cortical neuronal loss in the absence of cerebral white matter demyelination
		B. Trapp (Cleveland, US)
08:15 - 08:30	2	Meningeal inflammation as a driver of cortical pathology
		R. Magliozzi (Verona, IT)
08:30 - 08:45	3	Pathology of radiologically isolated syndrome
		C. Lucchinetti (Rochester, US)
		Educational Session, Hall D
08:00 - 09:30		Educational Session 1: Pregnancy management in MS
		Level: Basic
		Chairs
		K. Hellwig (Bochum, DE)
		A. Langer-Gould (Pasadena, US)
08:00 - 08:30	4	Symptomatic treatment of MS and pregnancy / lactation management
		M. Magyari (Copenhagen, DK)
08:30 - 09:00	5	The natural history of MS during pregnancy and the postpartum period in contemporary MS cohort
		A. Langer-Gould (Pasadena, US)
09:00 - 09:30	6	MS medication in people with MS planning a pregnancy: an update
		K. Hellwig (Bochum, DE)
		Educational Session, Hall E
08:00 - 09:30		Educational Session 2: Practical treatment recommendations based on new guidelines in MS
		Level: Basic
		Chairs
		X. Montalban (Toronto, CA)
		D. Pelletier (Los Angeles, US)

Scientific Programme

08:00 - 08:30	7	ECTRIMS/EAN MS treatment guidelines X. Montalban (Toronto, CA)
08:30 - 09:00	8	AAN treatment guidelines D. Pelletier (Los Angeles, US)
09:00 - 09:30	9	What else is needed in real life and is not covered by the guidelines? T. Kalincik (Melbourne, AU)

08:00 - 09:30		Educational Session, Hall F Educational Session 3: Neurofilament light chains in MS: where do we stand, the long road to clinical application Level: Intermediate Chairs C. Teunissen (Amsterdam, NL) J. Kuhle (Basel, CH)
08:00 - 08:30	10	The long road to clinical application: where do we stand with neurofilament light chain in MS? J. Kuhle (Basel, CH)
08:30 - 09:00	11	The long road to clinical implementation C. Teunissen (Amsterdam, NL)
09:00 - 09:30	12	Clinical application today and tomorrow F. Piehl (Stockholm, SE)

08:00 - 09:30		Educational Session, Hall G Educational Session 5: Impact and management of comorbidities in MS Level: Intermediate Chairs R.A. Marrie (Winnipeg, CA) H. Tremlett (Vancouver, CA)
08:00 - 08:30	16	The impact of comorbidity on multiple sclerosis R.A. Marrie (Winnipeg, CA)
08:30 - 09:00	17	Bidirectional relationships between comorbidity and disease-modifying therapy H. Tremlett (Vancouver, CA)
09:00 - 09:30	18	Management of psychiatric comorbidity in multiple sclerosis A. Feinstein (Toronto, CA)

Scientific Programme

08:00 - 09:30

Educational Session, Hall H

Educational Session 4: Immunology of MS

Level: Advanced

Chairs

E. Meinl (Martinsried, DE)
V.W.W. Yong (Calgary, CA)

08:00 - 08:30 13

B cells and T cells in MS

E. Meinl (Martinsried, DE)

08:30 - 09:00 14

Myeloid cells in MS

V.W.W. Yong (Calgary, CA)

09:00 - 09:30 15

Systems Immunology to model, predict and monitor multiple sclerosis

C. Farina (Milan, IT)

08:55 - 09:40

Hot Topic, Hall B

Hot Topic 2: Digital MS: improving data acquisition and analysis

Chairs

J. Haas (Berlin, DE)
M. Magyari (Copenhagen, DK)

08:55 - 09:10 19

Towards standardisation of clinical documentation in MS

M. D'Souza (Basel, CH)

09:10 - 09:25 20

Automated MR image analysis

D.L. Arnold (Montreal, CA)

09:25 - 09:40 21

Using mobile devices for patient reported outcomes

T. Ziemssen (Dresden, DE)

09:00 - 10:15

Young Scientific Investigators' Session, Hall C

Young Scientific Investigators' Session 1: Imaging

Chairs

M.S. Freedman (Ottawa, CA)
H.F. Harbo (Oslo, NO)

09:00 - 09:15 22

Demyelination, inflammation and axonal loss explain different patterns of fractional anisotropy abnormalities in MS cortical normal appearing gray matter and lesions

P. Preziosa (Amsterdam, NL)

09:15 - 09:30 23

Multicentre MAGNIMS study group trial investigating the correlation between cortical and periventricular pathology in MS

L. Pirpamer (Graz, AT)

Scientific Programme

09:30 - 09:45	24	MRI brain T1 gray matter/white matter contrast in multiple sclerosis versus migraine using magnetization prepared rapid gradient echo (MPRAGE) sequences T. Mitrovic (Basel, CH)
09:45 - 10:00	25	T1-weighted signal intensity change in the dentate nucleus of MS patients after repeated application of linear and macrocyclic gadolinium-based contrast agents S. Grahl (Munich, DE)
10:00 - 10:15	26	Brain age estimation in a longitudinal cohort of patients with multiple sclerosis E.A. Høgestøl (Oslo, NO)
 Hot Topic, Hall B		
09:45 - 10:30		Hot Topic 3: Biosimilars and follow-ups Chairs J. Hillert (Stockholm, SE) A. Wilkins (Bristol, UK)
09:45 - 10:00	27	Regulator's perspective R. Anour (Vienna, AT)
10:00 - 10:15	28	Generic, biosimilar and complex non-biologic follow-on drugs: the clinician's perspective J. Cohen (Cleveland, US)
10:15 - 10:30	29	The European biosimilar experience: lessons learned from a maturing market U. Banning (Frankfurt, DE)
 Hot Topic, Hall D		
09:45 - 10:30		Hot Topic 4: New approaches for microscopic and macroscopic imaging Chairs J. Antel (Montreal, CA) B. Stankoff (Paris, FR)
09:45 - 10:00	30	In vivo brain imaging in experimental models T. Misgeld (Munich, DE)
10:00 - 10:15	31	MRI based molecular imaging C. Stagg (Oxford, UK)
10:15 - 10:30	32	PET based molecular imaging B. Bodini (Paris, FR)

Scientific Programme

		Hot Topic, Hall E
09:45 - 10:30		Hot Topic 5: Mechanisms of CNS autoimmunity
		Chairs
		R. Liblau (Toulouse, FR)
		M. Friese (Hamburg, FR)
09:45 - 10:00	33	Innate immunity
		M. Prinz (Freiburg, DE)
10:00 - 10:15	34	B and T cells in multiple sclerosis
		T. Korn (Munich, DE)
10:15 - 10:30	35	Blood brain barrier
		A. Prat (Montreal, CA)
		Educational Session, Hall F
09:45 - 10:30		Case-based Educational Session 6: How to manage non-response to highly active (second line) drugs?
		Chairs
		A.J. Coles (Cambridge, UK)
		J. Sastre-Garriga (Barcelona, ES)
09:45 - 10:07	36	Case 1
		A.J. Coles (Cambridge, UK)
10:07 - 10:29	37	Case 2
		J. Sastre-Garriga (Barcelona, ES)
		Educational Session, Hall G
09:45 - 10:30		Case-based Educational Session 7: Progressive MS: who should be treated and how to monitor treatment response?
		Chairs
		B.A. Cree (San Francisco, US)
		R. Kapoor (London, UK)
09:45 - 10:07	38	Case-based Educational Session 7: “Progressive MS: who should be treated, and how to monitor treatment response?”
		B.A. Cree (San Francisco, US)
10:07 - 10:29	39	Case 2
		R. Kapoor (London, UK)

Scientific Programme

09:45 - 10:30		Educational Session, Hall H Case-based Educational Session 8: Should all MS patients be treated? Chairs A. Chan (Bern, CH) M. Stangel (Hannover, DE)
09:45 - 10:07	40	Pro M. Stangel (Hannover, DE)
10:07 - 10:29	41	Con A. Chan (Bern, CH)
11:00 - 12:15		Plenary Session, Hall A Plenary Session 1: Welcome and ECTRIMS Lecture Chairs R. Hohlfeld (Munich, DE) B. Hemmer (Munich, DE) D. Miller (London, UK)
11:00 - 11:30	42	Welcome to ECTRIMS 2018 D. Miller (London, UK) R. Hohlfeld (Munich, DE)
11:30 - 12:15	43	Multiple sclerosis in the digital age: 'seeing through a glass darkly' A. Compston (Cambridge, UK)
12:30 - 13:30		Satellite Symposium, Hall A Satellite Symposium 1: Data • Analysis • Technology • Application developments on the frontiers of MS Supported by Biogen * the approved dosing schedule for natalizumab is 300 mg once every 4 weeks Chairs H.-P. Hartung (Düsseldorf, DE)
12:30 - 12:35	44	Introduction H.-P. Hartung (Düsseldorf, DE)
12:35 - 12:45	45	The clinical data on extended interval dosing (EID) with natalizumab* J. Foley (Salt Lake City, US)
12:45 - 13:00	46	Biological hypotheses and experimental approaches suggested by available natalizumab data S.E. Goelz (Portland, US)

Scientific Programme

13:00 - 13:10	47	Serum neurofilament light (sNfL) from a research point of view C. Teunissen (Amsterdam, NL)
13:10 - 13:25	48	The clinical relevance of serum neurofilament light (sNfL) R.J. Fox (Cleveland, US)
13:25 - 13:30	49	Closing remarks H.-P. Hartung (Düsseldorf, DE)
12:30 - 13:30		Satellite Symposium, Hall D Satellite Symposium 2: THC: CBD in multiple sclerosis spasticity symptoms: newest evidence confirming efficacy and safety Supported by Almirall S.A. Chairs T. Ziemssen (Dresden, DE)
12:30 - 12:40	50	Welcome
12:40 - 13:00	51	THC: CBD post-approval pragmatic studies evidence F. Patti (Catania, IT)
13:00 - 13:20	52	THC: CBD post-approval clinical trials evidence J. Marková (Prague, CZ)
13:20 - 13:30	53	Closing
13:30 - 15:00		Scientific Session, Hall B Scientific Session 1: How real world data can inform treatment decisions Chairs S. Vukusic (Lyon, FR) O. Stuve (Dallas, US)
13:30 - 13:50	54	Efficacy in the real world T. Kalincik (Melbourne, AU)
13:50 - 14:10	55	Traps and pitfalls (methodological issues) M.P. Sormani (Genoa, IT) Platform presentations of related original papers
14:10 - 14:22	56	Multiple sclerosis in Germany 2018 - update on baseline data from the German MS Registry P. Flachenecker (Bad Wildbad, DE)

Scientific Programme

14:22 - 14:32	57	Determinants of disability accumulation in secondary-progressive multiple sclerosis N. Lizak (Melbourne, AU)
14:32 - 14:44	58	Familial multiple sclerosis: comparing demographic and clinical characteristics with sporadic form S. Eichau (Sevilla, ES)
14:44 - 14:56	59	Comparative effectiveness of switching to natalizumab or fingolimod after relapse on first-line relapsing-remitting multiple sclerosis therapy: propensity score matching analysis from the MSBase registry T. Spelman (Solna, SE)

Scientific Session, Hall C

13:30 - 15:00

Scientific Session 2: Paediatric MS

Chairs

T. Chitnis (Boston, US)
S. Tenembaum (Buenos Aires, AR)

13:30 - 13:50	60	Emerging biomarkers in paediatric MS A. Bar-Or (Philadelphia, US)
13:50 - 14:10	61	Treatment of paediatric MS in the era of increasingly powerful therapy B. Banwell (Philadelphia, US)
Platform presentations of related original papers		
14:10 - 14:22	62	Predictors of epilepsy and subsequent relapse in children with acute disseminated encephalomyelitis T. Rossor (London, UK)
14:22 - 14:34	63	White matter development after pediatric onset multiple sclerosis and monophasic demyelinating disease: volume, magnetisation transfer ratio, and signal mass MRI changes R.A. Brown (Montreal, CA)
14:34 - 14:46	64	Usefulness of IgG oligoclonal bands, antibodies to MOG (MOG-IgG), and the application of the 2017 McDonald criteria in the evaluation of children with a first demyelinating episode: a prospective multicenter study T. Armangue (Barcelona, ES)
14:46 - 14:58	65	MOG-IgG1 antibodies in children P. Waters (Oxford, UK)

Scientific Programme

13:30 - 15:00

Educational Session, Hall F

Educational Session 9: Clinical trials in MS: the need for novelty

Level: Advanced

Chairs

M.P. Sormani (Genoa, IT)
J. Chataway (London, UK)

13:30 - 14:00 66

Endpoints in MS clinical trials: going beyond EDSS

F. Pellegrini (Zug, CH)

14:00 - 14:30 67

More flexibility for future MS trials: adaptive designs

J. Chataway (London, UK)

14:30 - 15:00 68

Prognosis, response to therapy and treatment effect: easy to say, hard to measure

M.P. Sormani (Genoa, IT)

13:30 - 15:00

Educational Session, Hall G

Educational Session 10 (IMSCOGS): Innovation in MRI in relation to cognitive and neuropsychiatric phenomena in MS

Level: Advanced

Chairs

C. Enzinger (Graz, AT)

13:30 - 14:00 69

Neuropathological injury in MS and relationship to structural MRI metrics

J. Geurts (Amsterdam, NL)

14:00 - 14:30 70

Functional MRI studies in MS: update on brain plasticity and repair

C. Enzinger (Graz, AT)

14:30 - 15:00 71

Functional relevance of MRI in early MS, correlation with cognitive performance and related outcomes

B. Brochet (Bordeaux, FR)

13:30 - 15:00

Educational Session, Hall H

Educational Session 11: Molecular mechanisms of tissue injury in cortical MS lesions

Level: Advanced

Chairs

J. Van Horssen (Amsterdam, NL)
D.J. Mahad (Edinburgh, UK)

Scientific Programme

13:30 - 14:00	72	Unraveling the cause of neuronal mitochondrial dysfunction in MS J. Van Horssen (Amsterdam, NL)
14:00 - 14:30	73	Uncovering the pathogenesis of synapse loss in cortical MS and its models M. Kerschensteiner (Munich, DE)
14:30 - 15:00	74	Understanding the early clinical and pathological consequences of mitochondrial dysfunction in progressive MS D.J. Mahad (Edinburgh, UK)
13:45 - 14:45		Satellite Symposium, Hall A European Charcot Foundation Symposium: Towards imaging biomarkers for disease progression in MS Chairs G. Comi (Milan, IT) D. Miller (London, UK)
13:45 - 14:05	75	What should be imaged in progressive MS: the lesson from pathology H. Lassmann (Wien, AT)
14:05 - 14:25	76	Is the progression a synchronous process in CNS compartments: MRI evidences M. Filippi (Milan, IT)
14:25 - 14:45	77	Understanding progression: a PET imaging perspective B. Stankoff (Paris, FR)
13:45 - 15:00		Young Scientific Investigators' Session, Hall D Young Scientific Investigators' Session 2: Immunology/Neurobiology Chairs S. Dhib Jalbut (New Brunswick, US) C. Teunissen (Amsterdam, NL)
13:45 - 14:00	78	Cytoskeletal breakdown during axon injury in a mouse model of neuromyelitis optica M. Herwerth (München, DE)
14:00 - 14:15	79	Mucosal addressin cell adhesion molecule 1 mediated intestinal lymphocyte homing is critical for the development of experimental autoimmune encephalomyelitis K. Kuhbandner (Erlangen, DE)
14:15 - 14:30	80	Vitamin D augments glucocorticosteroid efficacy via inhibition of mTORc1 M. Bagnoud (Bern, CH)

Scientific Programme

14:30 - 14:45	81	A novel β1-integrin/KV1.3 -mediated vesicular glutamate release pathway in Th17 cells K. Birkner (Mainz, DE)
14:45 - 15:00	82	The oligodendroglial differentiation block in multiple sclerosis- mediated by intrinsic or extrinsic factors? L. Starost (Münster, DE)
13:45 - 15:00		Nurses' Session, Hall E Nurses' Session 1: Digital solutions Chairs L. Keenan (London, UK) B. Porter (London, UK)
13:45 - 14:10	83	Digital solutions that support MS nursing care R. Morrison (Lewis, UK)
14:10 - 14:35	84	Adolescent transition - lessons from two specialist centres K. Hanson (London, UK)
14:35 - 15:00	85	Digital care programme NeuroResponse B. Porter (London, UK)
15:30 - 17:00		Scientific Session, Hall A Scientific Session 3: Risk management with MS therapies Chairs T. Derfuss (Basel, CH) L. Brundin (Stockholm, SE)
15:30 - 15:50	86	Risk prediction and monitoring H. Wiendl (Münster, DE)
15:50 - 16:10	87	Treatment of PML and other opportunistic infections J. Berger (Philadelphia, US)
		Platform presentations of related original papers
16:10 - 16:22	88	Mortality rates in large US and Swedish rituximab-treated multiple sclerosis cohorts A. Langer-Gould (Pasadena, US)
16:22 - 16:34	89	Cancer risk among Swedish multiple sclerosis patients: a nationwide cohort study comparing rituximab, fingolimod and natalizumab P. Alping (Stockholm, SE)
16:34 - 16:46	90	Severe encephalitis and meningoencephalitis with systemic symptoms after daclizumab therapy for multiple sclerosis I. Metz (Göttingen, DE)

Scientific Programme

16:46 - 16:58	91	Monitoring CNS inflammatory activity in natalizumab related PML with TSPO-PET C. Mahler (München, DE)
Scientific Session, Hall B		
15:30 - 17:00		Burning Debate: The new McDonald diagnostic criteria are controversial making them difficult to use in clinical practice Chairs E. Waubant (San Francisco, US) A. Thomson (London, UK)
15:30 - 16:15	92	Yes F. Zipp (Mainz, DE)
16:15 - 17:00	93	No J. Oh (Toronto, CA)
Scientific Session, Hall C		
15:30 - 17:00		Scientific Session 4 (IMSCOGS): Cognition in MS Chairs R.H. Benedict (Buffalo, US) D. Langdon (London, UK)
15:30 - 15:50	94	Potential of exercise and cognitive training I.-K. Penner (Düsseldorf, DE)
15:50 - 16:10	95	Cognitive rehabilitation and neuroimaging J. DeLuca (West Orange, US)
Platform presentations of related original papers		
16:10 - 16:22	96	Damage to long-range connections is especially relevant for cognitive impairment in multiple sclerosis K.A. Meijer (Amsterdam, NL)
16:22 - 16:34	97	Early focal inflammatory disease is associated with long-term cognitive performance in relapse-onset multiple sclerosis W. Brownlee (London, UK)
16:34 - 16:46	98	Cognitive processing speed assessment in clinical practice: clinical, patient reported outcome, and quantitative MRI correlations G. Macaron (Cleveland, US)
16:46 - 16:58	99	The effect of depression and bipolar disorder on multiple sclerosis disability worsening S. Binzer (Stockholm, SE)

Scientific Programme

15:30 - 16:45		Young Scientific Investigators' Session, Hall D Young Scientific Investigators' Session 3: Clinical Chairs R. Diem (Heidelberg, DE) K. Selmaj (Lodz, PL)
15:30 - 15:45	100	Immunological phenotyping identifies MS patients with accentuated immune cell activation upon anti-CD20 treatment S. Häusser-Kinzel (Göttingen, DE)
15:45 - 16:00	101	Cladribine personalised dosing in people with MS (n>200) - four years experience in clinical care S. De Trane (London, UK)
16:00 - 16:15	102	Importance of CD4+CCR5+ effector memory cells for immune surveillance S. Herich (Muenster, DE)
16:15 - 16:30	103	Aquaporin-4-IgG seropositivity is associated with worse visual outcomes after optic neuritis, independent of inner retinal layer thinning and microcystic macular pathology E. Sotirchos (Baltimore, US)
16:30 - 16:45	104	Vitreous haze as a novel marker for neurodegeneration in MS possibly indicating impairment of the retinal glymphatic system D. Coric (Amsterdam, NL)
15:30 - 16:45		Nurses' Session, Hall E Nurses' Session 2: MS Nursing around the world Chairs M.A. Robles (Barcelona, ES) A.K. Krakau Hansen (Copenhagen, DK)
15:30 - 15:55	105	The female sexuality related to the male with MS who has erectile dysfunction H. Breinholt (Herning, DK)
15:55 - 16:20	106	Patient experience using MS nurse led clinic R.F.S. Alarieh (Riyadh, SA)
16:20 - 16:45	107	A nurse-led research to improve the tolerability of alemtuzumab by reducing peri-infusional reactions C.M. Oriol (Barcelona, ES)

Scientific Programme

15:30 - 17:00

Educational Session, Hall F

Educational Session 12: MS mimicks: other neuro-inflammatory disorders

Level: Basic

Chairs

A. Siva (Istanbul, TR)
M. Keegan (Rochester, US)

15:30 - 16:00

108

NMOSD and related autoantibody CNS disorders

A. Siva (Istanbul, TR)

16:00 - 16:30

109

Atypical inflammatory syndromes of the CNS

M. Keegan (Rochester, US)

16:30 - 17:00

110

Primary and secondary inflammatory vasculopathies and other inflammatory disorders of the CNS mimicking MS

C. Rice (Bristol, UK)

15:30 - 17:00

Educational Session, Hall G

Educational Session 13: Genetics and biomarkers in MS

Level: Advanced

Chairs

B. Hemmer (Munich, DE)
M. Comabella (Barcelona, ES)

15:30 - 16:00

111

General considerations in biomarker research and application

B. Hemmer (Munich, DE)

16:00 - 16:30

112

Serum and CSF biomarkers in MS

M. Comabella (Barcelona, ES)

16:30 - 17:00

113

Basics of MS genetics

S.E. Baranzini (San Francisco, US)

15:30 - 17:00

Educational Session, Hall H

Educational Session 14: Myelin repair in MS

Level: Advanced

Chairs

C. Lubetzki (Paris, FR)

15:30 - 16:00

114

What have we learnt on remyelination in MS? an historical perspective

C. Lubetzki (Paris, FR)

16:00 - 16:30

115

Promoting exogenous remyelination: from basic sciences to translation

S. Goldman (Copenhagen, DK)

Scientific Programme

16:30 - 17:00	116	Promoting endogenous remyelination: from basic sciences to translation A. Green (San Francisco, US)
Poster Sessions, Poster exhibition		
17:00 - 19:00		Poster Session 1
	P330	An international multicentre validation experiment for MOG antibodies M. Reindl (Innsbruck, AT)
	P331	Migraine and clinically isolated syndrome: the role of periventricular lesions C. Lapucci (Genoa, IT)
	P332	Multiple sclerosis and Sarcoidosis: a case for co-existence C. Tyshkov (New York City, US)
	P333	Multiple sclerosis new criteria are also more relevant in North Africans A. Gargouri (La Mannouba, TN)
	P334	Subclinical disease progression in NMO spectrum disorders suggested by full-field visual evoked potentials M. Ringelstein (Düsseldorf, DE)
	P335	Patient satisfaction with the first talk about diagnosis and its impact on treatment decisions: a Swiss multiple sclerosis Registry study L. Barin (Zurich, CH)
	P336	Myelin oligodendrocyte glycoprotein (MOG) antibody-associated demyelination: comparison between onset phenotypes Y. Zhou (Guangzhou, CN)
	P337	Leucopathy-like acute demyelinating syndromes with anti-MOG-antibodies in children E. Yazbeck (Le Kremlin Bicêtre, FR)
	P338	Neuromyelitis optica spectrum disorders: the evaluation of 66 patients followed by Istanbul Bilim University, department of neurology B. Altunrende (Istanbul, TR)
	P339	A comparative analysis of diagnosis delays when applying the 2017 McDonald criteria to patients with recurring-relapsing multiple sclerosis S. Gassama (Rouen, FR)
	P340	Tbet positive B cells discriminate active neuromyelitis optica spectrum disorder J.L. Bennett (Aurora, US)
	P341	Clinical and MRI features of onset myelitis in MOG-antibody disease R. Mariano (Oxford, UK)
	P342	Subclinical visual loss may be associated with MOG- IgG associated longitudinally extensive transverse myelitis L. Pandit (Mangalore, IN)

Scientific Programme

- P343 Early treatment in neuromyelitis optica spectrum disorders**
M. Radaelli (Milano, IT)
- P344 Do concomitant autoimmune diseases affect neuromyelitis optica spectrum disorder (NMOSD) course?**
N. Molazadeh (Tehran, IR)
- P345 Decision-making on radiologically isolated syndrome among Argentinean neurologists: a survey based on clinical experience**
E. Carnero Contentti (Buenos Aires, AR)
- P346 The central vein sign in paediatric-onset multiple sclerosis**
T. Sinnecker (Basel, CH)
- P347 Macular changes in pediatric multiple sclerosis**
H. Hummel (Göttingen, DE)
- P348 Adults with MS show earlier cognitive changes than those with pediatric MS**
A. Clayton (New York, US)
- P349 Perspectives on clinical trials in pediatric MS: results of an international survey**
K. Deiva (Kremlin Bicêtre, FR)
- P350 Juvenile multiple sclerosis (SOKIDMUS study): evaluation of factors associated with socio-professional performances in adulthood**
Y. Mikaeloff (Villejuif, FR)
- P351 Obesity is associated with increased risk of developing pediatric multiple sclerosis and frequent failure of first-line therapy**
P. Huppke (Göttingen, DE)
- P352 Disability outcomes in patients with early cerebellar symptoms in multiple sclerosis**
M.V.H. Le (Melbourne, AU)
- P353 Factors affecting mortality and causes of death among MS patients**
A. Scalfari (London, UK)
- P354 Pregnancy outcomes in Teriflunomide exposed men and women. A nationwide Danish registry-based study**
J.B. Andersen (København Ø, DK)
- P355 Robust evaluation of MS prevalence in Sweden based on the National Patient Registry data by modelling of a distribution of inpatient and outpatient care events, reported with MS diagnosis**
L. Stawiarz (Stockholm, SE)
- P356 Inflammatory activity in the cerebrospinal fluid a decade after acute infectious mononucleosis**
D. Jons (Göteborg, SE)
- P357 Increased risk of MS after organic solvent exposure**
I. Boström (Karlstad, SE)

Scientific Programme

- P358 Differential multiple sclerosis treatment allocation between Australia & New Zealand impacts on clinical course but not quality of life**
S. Simpson, Jr. (Carlton, AU)
- P359 Risk of mortality in immigrants with MS in Ontario, Canada**
D. Rotstein (Toronto, CA)
- P360 Hospital admission, discharges and in-hospital mortality in multiple sclerosis patients: nationally representative data**
I.C. George (New York, US)
- P361 Prevalence of multiple sclerosis within a healthcare delivery system in Northern California: a retrospective, electronic, health records-based study from 2010 to 2016**
R. Romanelli (Palo Alto, US)
- P362 Factors associated with therapeutic inertia in multiple sclerosis care: results from a cross-sectional study in Argentina**
G. Saposnik (Toronto, CA)
- P363 Observatoire Français de la Sclérose en Plaques (OFSEP): an update**
R. Casey (Lyon, FR)
- P364 Diet quality is associated with mobility and cognitive function in people with multiple sclerosis**
K. Fitzgerald (Baltimore, US)
- P365 Three dietary patterns consistently demonstrated over five years of follow-up in early multiple sclerosis: results from the AusLong Study**
S. Simpson, Jr. (Carlton, AU)
- P366 Patient-reported loneliness and pessimism are associated with EDSS progression after discontinuation of disease modifying therapies in multiple sclerosis**
C.B. Vaughn (Buffalo, US)
- P367 Prognostic value of Anti-AQP4 and Anti-MOG antibodies in acute idiopathic transverse myelitis group**
R.E.a. ericksson (RIO DE JANEIRO, BR)
- P368 Disease-modifying therapies for multiple sclerosis in association with pregnancy: a Swedish nation-wide cohort study**
A. Gorczyca (Stockholm, SE)
- P369 What is the impact of natural menopause on multiple sclerosis? An Italian, multicentre, retrospective, observational study**
P. Annovazzi (Gallarate (VA), IT)
- P370 Pregnancy and obstetrical outcomes in women with RRMS**
C. Oreja-Guevara (Madrid, ES)
- P371 Characteristics and treatment of multiple sclerosis - related trigeminal neuralgia: an Italian multi-centre study**
D. Ferraro (Modena, IT)

Scientific Programme

- P372 Thoracic flexion provokes and localizes thoracic lesions in multiple sclerosis: a new clinical sign**
A.T. Reder (Chicago, US)
- P373 Assessing fatigue in multiple sclerosis: psychometric properties of the 5-item MFIS questionnaire**
V. Meca-Lallana (Madrid, ES)
- P374 Social support reduces the impact of chronic pain in individuals with physical disability: a longitudinal study**
M.P. Jensen (Seattle, US)
- P375 Fatigue and motor disability in African Americans with multiple sclerosis**
M. Petracca (New York City, US)
- P376 Movement disorders in primary progressive MS: a prospective observational study**
H. Abboud (Cleveland, US)
- P377 Spinal cord area as a cross-sectional predictor of gait related disability in multiple sclerosis**
M. McGinley (Cleveland, US)
- P378 Plasma neurofilament light levels are associated with risk of developing sustained disability in multiple sclerosis**
A. Manouchehrinia (Stockholm, SE)
- P379 Brain and spinal MRI features can distinguish MS from NMOSD with different serostatus at disease onset in Latin American patients**
E. Carnero Contentti (Buenos Aires, AR)
- P380 Periodic limb movements in people with multiple sclerosis who report fatigue: polysomnography study in a large cohort**
J. Srinivasan (Patchogue, US)
- P381 Baseline cognitive evaluation predicts one year disability progression in MS**
R. Milo (Ashkelon, IL)
- P382 Variability in scoring the functional system scores of the expanded disability status scale at clinics from different countries**
S. Hum (Montreal, CA)
- P383 Importance of patient reported outcomes: correlation of clinician-evaluated versus patient self-reported disability in multiple sclerosis patients**
A. Ahmad (Washington, DC, US)
- P384 Upper limb function assessed by an engineered glove correlates with motor and cognitive disability in progressive MS**
L. Carmisciano (Genova, IT)
- P385 Evoked potentials and white matter lesion volume to explain disability in early MS**
A. Wuschek (Munich, DE)

Scientific Programme

- P386 Validation of the assessment of self-reported MS symptom severity using single-item 0-10 numeric rating scales**
Y. Zhang (Hobart, AU)
- P387 Validation of bipedal hop test to detect subtle but meaningful impairment among people with mild multiple sclerosis**
M.C. Kirkland (St. John's, CA)
- P388 Real-life smartphone accelerometry is closer correlated with disability and mobility in MS than a commonly used wrist-worn activity and mobility tracker**
Y. Zhai (Hamburg, DE)
- P389 Categorising the multiple sclerosis impact score 29: performance over 7 years of follow-up in the UK MS Register**
R. Nicholas (London, UK)
- P390 Spinal cord atrophy but not brain atrophy measures, correlates with the Multiple Sclerosis Severity Score**
B. Casanova Estruch (València, ES)
- P391 Cerebellar grey matter damage associates with cognitive impairment, but not with fatigue and emotional changes in early relapse onset multiple sclerosis**
A. Lazzarotto (Padova, IT)
- P392 Assessment of the addition of an activities of daily living measure to the UK MS Register**
R. Middleton (Swansea, UK)
- P393 Multiple sclerosis: brain atrophy and multi-domain computerized cognitive testing - a longitudinal investigation of changes in disease impact relating structure to function**
M. Gudesblatt (Patchogue, US)
- P394 Quality of life among patients with multiple sclerosis at a specialized center in Colombia**
B. Vagner-Ramírez (Medellin, CO)
- P395 Manual dexterity and computerized cognitive testing in people with multiple sclerosis: motor domain reflects more than just what is in the hand**
M. Gudesblatt (Patchogue, US)
- P396 New diagnostic criteria and the costs for treating multiple sclerosis**
M. Petruzzo (Naples, IT)
- P397 Cost progression regarding healthcare, sickness absence, and disability pension among people newly diagnosed with MS: a register-based longitudinal study in Sweden estimating cost trajectories in four cohorts of incident MS cases over time**
K. Karampampa (Stockholm, SE)
- P398 Analysis of the satisfaction of needs in multiple sclerosis**
M. Ponzio (Genoa, IT)

Scientific Programme

- P399** **Is there a relationship between oculomotor fatigability and perceived fatigue in multiple sclerosis?**
J. Nij Bijvank (Amsterdam, NL)
- P400** **Quantification of pupillary light reflex abnormalities in patients with neuromyelitis optica spectrum disorder and multiple sclerosis using automated infrared pupillometry**
S. Samadzadeh (Bamberg, DE)
- P401** **Critical flicker fusion threshold test in MS population - is it a viable way of effective and quick monitoring of visual function?**
S. David (Aalborg, DK)
- P402** **Visual evoked potential in EAE and toxic demyelination: a pre-clinical model for remyelination efficacy that is predictive of human clinical trials**
C. Cordano (Genova, IT)
- P404** **New, diagnostic flicker test for optic neuritis shows changes in response following disease onset**
G. Pihl-Jensen (Glostrup, DK)
- P405** **Looking for new markers of therapeutic response: a functional structural study of the retina in multiple sclerosis**
I. Pulido-Valdeolivas (Barcelona, ES)
- P406** **Corticotropin treatment of acute optic neuritis improves low contrast visual acuity in some asymptomatic eyes: repair of subclinical MS lesions**
R. Sergott (Philadelphia, US)
- P407** **Comparative effect of tobacco versus non-tobacco use on disease outcomes and discontinuation of oral disease modifying therapies in clinical practice**
C. Hersh (Las Vegas, US)
- P408** **Multiple sclerosis is associated with an increased risk of acute myocardial infarction**
R.A. Marrie (Winnipeg, CA)
- P409** **Abdominal obesity is associated with more severe disability in a large population of people with multiple sclerosis**
K. Fitzgerald (Baltimore, US)
- P410** **Impact of quality-driven interventions on screening for cognitive impairment and depression in multiple sclerosis (MS) patients**
T. Sapir (Fort Lauderdale, US)
- P411** **Impact of comorbidity and DMT use by DMT group on quality of life in participants in the Pacific Northwest MS Registry**
T. Stuchiner (Portland, US)
- P412** **Vascular disease risk factors and MS progression: a study of brain metabolism**
V. Yadav (Portland, US)

Scientific Programme

- P413 Arterial hypertension in patients with multiple sclerosis as a significant risk factor of disability progression**
N. Neofidov (Saint-Petersburg, RU)
- P414 RLS is an important and frequent cause of depression and anxiety in patients with MS: striking results of the 'RELOMS-T'**
S. Sevim (Mersin, TR)
- P415 Neuroinflammation causes changes to the nodes of Ranvier in multiple sclerosis normal appearing white matter**
P. Gallego Delgado (London, UK)
- P416 Differential expression of microglial TMEM119 and P2RY12 in white-versus grey-matter multiple sclerosis lesions; does the presence of leukocytes determine microglial responsivity?**
T.A. van Wageningen (Amsterdam, NL)
- P417 Cortical neuronal loss and white matter demyelination in multiple sclerosis: a retrospective study**
J. Dudman (Cleveland, US)
- P418 Persistent TNF and IFN γ production induced in the cerebral meninges in a rat model of MS gives rise to neuronal loss**
R. James (London, UK)
- P419 Synaptic pathology and plasticity in grey matter inflammation in multiple sclerosis**
M. Vercellino (Torino, IT)
- P420 In vivo confocal imaging and single-cell transcriptomic analyses reveal early activation of retinal microglia during experimental autoimmune encephalomyelitis**
A. Cruz-Herranz (San Francisco, US)
- P421 Multicolor 19F-MRI for in vivo imaging of immune cells activity in a model of multiple sclerosis**
C. Chirizzi (Milan, IT)
- P422 Are B cells attracted by T follicular helper cells in the EAE animal model of MS?**
M. Hartlehnert (Münster, DE)
- P423 Modeling neuroinflammation in human neural stem cell niches with induced pluripotent stem cell-derived cerebral organoid reveals altered migration and neurogenetic programs: implications for neurogenesis in multiple sclerosis**
E. Hollingsworth (Columbus, US)
- P424 Automatic segmentation of white matter and detection of active lesions in multiple sclerosis**
H.M.R. Afzal (Newcastle, AU)
- P425 Visual evoked potentials and optical coherence tomography to detect optic neuritis in C57BL/6**
S. Marenga (Milano, IT)

Scientific Programme

- P426 Fusiogenic property of virus determines the mechanistic aspects of axonal loss concurrent with demyelination**
M. Singh (Mohanpur, IN)
- P427 Age and chronicity of demyelination determine motor impairment in a model of multiple sclerosis**
M. Karamita (Athens, GR)
- P428 Evaluating the distribution and haplotype structure of multiple sclerosis risk loci across populations**
A. Beecham (Miami, US)
- P429 Molecular signature of brain lesion evolution and fate in progressive MS**
M.L. Elkjaer (Odense C, DK)
- P430 Multiple sclerosis-associated microRNA-548ac targets immunologically relevant genes including SDC4, SEL1L and TNFAIP3**
N. Boxberger (Rostock, DE)
- P431 Parent-of-origin genetic effects in multiple sclerosis**
N. Isobe (Fukuoka, JP)
- P433 Increased microRNA-146a circulating levels in Portuguese multiple sclerosis patients**
A. Bettencourt (Porto, PT)
- P434 Innate signaling in central nervous system recruits myeloid suppressor cells**
J. Marczyńska (Odense, DK)
- P435 Defining the cellular and molecular mechanisms mediating the migration of human CD4⁺ effector T-cell subsets across the human BBB in vitro: the role of PECAM-1 and CD99**
H. Nishihara (Bern, CH)
- P436 Characterisation of pro- and antiinflammatory mechanisms in the gut mucosa of patients with multiple sclerosis**
T. Leichsenring (Bochum, DE)
- P437 Mesenchymal stem cells from patients with MS in interaction with autologous immune cells have defective immunomodulatory activity and enhance production of inflammatory cytokines**
C. Constantinescu (Nottingham, UK)
- P438 Cytotoxic and regulatory roles of mucosal invariant T (MAIT) cells in multiple sclerosis (MS)**
J. Correale (Buenos Aires, AR)
- P439 Impaired neutrophil death in AQP4-IgG-seropositive NMO patients**
M. Schroeder-Castagno (Berlin, DE)
- P440 Chitinase-3-like protein 1 could be a predictor of disability progression in patients with primary progressive multiple sclerosis**
F. Pérez-Miralles (Valencia, ES)

Scientific Programme

- P441** **Preferential usage of the G1m1 allotype in intrathecal virus-specific antibodies in multiple sclerosis**
A. Tomescu-Baciu (Oslo, NO)
- P442** **Personalizing health care in multiple sclerosis using systems medicine tools: presentation of the cytomics data from the Sys4MS project**
M. Cellerino (Genova, IT)
- P443** **Soluble CD40 ligand contributes to blood-brain barrier breakdown in patients with multiple sclerosis and mice with experimental autoimmune encephalomyelitis**
H. Masuda (Chiba, JP)
- P444** **Dissecting the antigen specificity of cerebrospinal fluid-infiltrating CD4+ T cells in multiple sclerosis**
C. Cruciani (zurich, CH)
- P445** **The role of lipid-regulated LXR-mediated networks in driving pathogenic T-cells in people with multiple sclerosis**
K. Waddington (London, UK)
- P446** **Intestinal colonization by epsilon toxin-producing Clostridium perfringens strains is associated with multiple sclerosis**
S. Haigh (New York, US)
- P447** **Clostridium perfringens induced blood-brain barrier permeability: specificity and temporal dynamics in a humanized zebrafish model**
D. Adler (NEW YORK, US)
- P448** **Investigating the gene-environment interaction in multiple sclerosis through a “candidate-interactome” approach**
G. Pellicciari (rome, IT)
- P449** **Altered EBV transcriptional profile in the peripheral blood of CIS and MS patients**
C. Veroni (Rome, IT)
- P450** **Link between intake of monounsaturated fatty acids and cerebral gray matter atrophy in early MS**
I. Katz Sand (New York, US)
- P451** **The bio-psycho-social associations of smoking in multiple sclerosis**
R. Mills (Liverpool, UK)
- P452** **The association between smoking status and comorbidities and other symptoms in patients with multiple sclerosis**
M.V. Castro Sanchez (malaga, ES)
- P453** **Identification of oligodendroglial secreted factors inducing nodal protein clustering in the central nervous system**
E. Mazuir (Paris, FR)
- P454** **Molecular mechanisms underlying T cell-oligodendrocytes interactions in neuroinflammation**
H. Jamann (Montréal, CA)

Scientific Programme

- P455 Comparison of glia cell damage in exemplary hereditary leukodystrophies**
C. Bergner (Göttingen, DE)
- P456 Retinal ganglion cell layer and cervical spinal cord gray matter atrophy are present and underlie pathway specific disability in very early stage multiple sclerosis**
R. Schlaeger (Basel, CH)
- P457 Effect of delayed-release dimethyl fumarate on cognition in Italian patients with relapsing remitting multiple sclerosis: the phase 4 StarTec study**
V. Zipoli (Milano, IT)
- P458 Serum Neurofilament light chain concentration correlates with cognitive impairment and brain atrophy in relapsing remitting MS**
S. Mariotto (Verona, IT)
- P459 Leptomeningeal contrast enhancement correlates with neurodegeneration in multiple sclerosis**
I. Kalinin (Saint-Petersburg, RU)
- P460 Unilateral motor progression in multiple sclerosis: the impact of single critical corticospinal tract lesions**
E. Sechi (Rochester, US)
- P461 Deletion of the activity-dependent transcription factor neuronal PAS domain protein 4 protects against clinical disease in models of multiple sclerosis**
J. Quandt (Vancouver, CA)
- P462 miR-27a inhibits oligodendrocyte precursor cells maturation to oligodendrocytes in during remyelination**
R. Dutta (Cleveland, US)
- P463 Oncostatin M-induced astrocytic TIMP-1 enables remyelination**
B. Broux (Diepenbeek, BE)
- P464 Chondroitin sulfate proteoglycans impede oligodendrocyte differentiation through rho-kinase and myosin II**
S. Cummings (Ottawa, CA)
- P465 Impact of cerebrospinal fluid on human Wharton jelly mesenchymal stem cells in vitro - therapeutic implications to multiple sclerosis**
M. Swiderek-Matysiak (Lodz, PL)
- P466 Infratentorial and spinal cord lesions, cumulative predictors of disability?**
I. Dekker (Amsterdam, NL)
- P467 Rapid and reliable, fully-automated brainstem segmentation for application in multiple sclerosis**
L. Sander (Basel, CH)
- P468 Presence of CSF oligoclonal bands is associated with periventricular NAWM damage gradient severity in clinically isolated syndrome**
M. Pardini (Genoa, IT)

Scientific Programme

- P469** **Lesion patterns topology is associated with regional cortical atrophy and predicts disease-related disability**
M. Muthuraman (Mainz, DE)
- P470** **Decreased tract integrity in normal appearing white matter correlates to increased microglial activation and disability in multiple sclerosis in vivo**
S. Bezukladova (Turku, FI)
- P471** **Large-scale normative volumes of brain structures as assessed by SIENAX**
N. De Stefano (Siena, IT)
- P472** **Gadolinium-induced changes in T1 relaxation time on 7-Tesla MRI in non-enhancing MS lesions may reveal chronic inflammation linked with disability and progressive phenotypes**
D. Harrison (Baltimore, US)
- P473** **Four-week in-patient multidisciplinary rehabilitation program in multiple sclerosis: behavioural and fMRI results**
P. Zuber (Basel, CH)
- P474** **Precision of manual vs. automated corpus callosum atrophy measurements in multiple sclerosis**
M. Platten (Stockholm, SE)
- P475** **Brain complexity and damage in patients with multiple sclerosis using fractal analysis: a new imaging outcome for monitoring MS severity**
E. Roura (Getxo (Bilbao), ES)
- P476** **Abnormal individual finger movement control in MS: a neurophysiological and neuroimaging study**
C. Gianni (Roma, IT)
- P477** **Spinal cord volume in multiple sclerosis patients with dissociation of disability and intracranial white matter lesion load**
M. Anelova (Prague, CZ)
- P478** **Imaging correlates of thalamic volume in a large multiple sclerosis cohort**
K. Nakamura (Cleveland, US)
- P479** **Effect of different doses of gadolinium contrast agent on clinical outcomes in multiple sclerosis**
N. Ackermans (Vancouver, CA)
- P480** **Inter-scanner variability may lead to differences in detection rate of leptomeningeal enhancement on 3D-FLAIR MRI in multiple sclerosis**
D. Titelbaum (Brockton, US)
- P481** **Leptomeningeal gadolinium enhancement lesions in multiple sclerosis are not related to different brain volume measures**
B. Casanova (València, ES)
- P482** **Baseline cerebellar volume as predictor of clinical disability in multiple sclerosis: MRI Findings from the CombiRx trial**
M. Petracca (New York City, US)

Scientific Programme

- P483 Alterations of individual cortical networks in clinically isolated syndrome: a multi-centre MAGNIMS study**
S. Collorone (London, UK)
- P484 Amyloid PET as a marker of normal-appearing white matter early damage in multiple sclerosis: correlation with CSF β -amyloid levels and brain volumes**
T. Carandini (Milan, IT)
- P485 Microstructural damage in cortico-subcortical white matter tracts in patients with clinically isolated syndrome: prediction of cognitive functioning and follow-up of its change for 1 year**
I. Koubiyr (Bordeaux, FR)
- P486 Association between abnormal functional connectivity of thalamic sub-regions and clinical disability in CIS patients: a longitudinal study**
M. Hidalgo de la Cruz (Milan, IT)
- P487 INSPIRATION: An approach to quantitative MRI assessment of MS patients in daily clinical practice**
A. Gass (Mannheim, DE)
- P488 The contribution of microglial activation to cortical demyelination in multiple sclerosis: a multimodal ¹¹C-PBR28 MR-PET and quantitative 7 Tesla imaging study**
E. Herranz (Boston, US)
- P489 Investigating the relationship between meningeal enhancement on 7T MRI and cortical gray matter lesions in multiple sclerosis**
D. Harrison (Baltimore, US)
- P490 Early predictors of brain atrophy among MS patients**
A. Scalfari (London, UK)
- P491 Normal appearing white matter damage detected by standardized T1w/T2w ratio**
G. Cooper (Berlin, DE)
- P492 Investigating the potential of high angular resolution diffusion imaging metrics and texture angular entropy for monitoring de- and remyelination in a cuprizone model of multiple sclerosis**
M.S. Hossain (Calgary, CA)
- P493 Comparison of Pittsburgh compound-B and fractional anisotropy as white matter integrity markers: correlations with cognitive function**
B. Zeydan (Rochester, US)
- P494 Manual delineation of only one image in unseen databases is sufficient for accurate performance in automated multiple sclerosis lesion segmentation**
S. Valverde (Girona, ES)
- P495 Validation of brain atrophy measurements in multiple sclerosis: a physical phantom study**
A. Altermatt (Allschwil, CH)

Scientific Programme

- P496** **Alteration of visual cortical microstructure is associated with pathology along the optic radiation in patient with MS: an asymmetry analysis of posterior visual pathway**
C. Wang (Sydney, AU)
- P497** **Magnetic resonance imaging parameters as predictors of physical and cognitive changes over the course of 8 years in patients with relapsing forms of multiple sclerosis**
D. Jeffery (Morresville, US)
- P498** **Association between baseline brain volumes and future change in EDSS in a cohort of early MS patients**
R. Opfer (Hamburg, DE)
- P499** **Multi-shell diffusion imaging reveals progressive axonal pathology in early multiple sclerosis**
S. De Santis (San Juan de Alicante, ES)
- P500** **Spatial distribution of white matter lesions in neuromyelitis optica spectrum disorder and multiple sclerosis**
S.-H. Kim (Goyang, KR)
- P501** **Transient enlargement of brain ventricles in the course of neuroinflammatory disease**
J. Millward (Berlin, DE)
- P502** **Coordinate based network meta-analysis: localised regions of consistent GM atrophy form networks**
C. Tench (Nottingham, UK)
- P503** **11C-PBR28 imaging in multiple sclerosis is reproducible and able to disclose progression of neuroinflammation**
E. Herranz (Boston, US)
- P504** **Characterizing grey-matter multiple sclerosis lesions using double inversion recovery, diffusion and contrast-enhanced MRI**
M.A. Parra (Stony Brook, US)
- P505** **Can MR spectroscopy predict multiple sclerosis and its clinical symptoms?**
J. Lechner-Scott (New Lambton, AU)
- P506** **Neuroinflammation in progressive multiple sclerosis: in vivo assessment using [18F]DPA714**
M.H.J. Hagens (Amsterdam, NL)
- P507** **Estimation of brain cerebrospinal fluid components in CIS patients**
D. Pareto (Barcelona, ES)
- P508** **QUANTUM - Standardized MRI acquisition with centralized quantitative MRI reading in daily clinical routine of MS patients**
S. Schippling (Zurich, CH)
- P509** **Annualized inner retinal layer atrophy rates show a flooring effect in longstanding MS; a limitation for longitudinal OCT studies?**
D. Coric (Amsterdam, NL)

Scientific Programme

- P510 3D fovea morphometry reveals distinct foveal changes in neuromyelitis optica spectrum disorders**
S. Motamedi (Berlin, DE)
- P511 Reductions in retinal vascular plexus densities in multiple sclerosis are associated with visual dysfunction and global disability**
O.C. Murphy (Baltimore, US)
- P512 OCT intra-retinal layer segmentation unveils grey and white matter pathology in primary progressive MS**
G. Boffa (Genova, IT)
- P513 The effect of tobacco use on retinal structures in vitamin d deficient patients with relapsing remitting multiple sclerosis**
C. Santiago-Martinez (Detroit, US)
- P514 Has the prevalence of uveitis in patients with multiple sclerosis been overestimated?**
D. Coric (Amsterdam, NL)
- P515 Obesity and retinal integrity in relapsing remitting multiple sclerosis**
C. Santiago-Martinez (Detroit, US)
- P516 Neurodegeneration of macular ganglion cells and maculo-papillary bundle is present early in radiologically isolated syndrome and reflects brain atrophy**
A. Vural (Ankara, TR)
- P517 Prevalence of isolated cognitive decline in a large, heterogeneous multiple sclerosis population**
J.R. Williams (Cambridge, US)
- P518 Evaluation of the cognitive-affective syndrome in subjects with RRMS**
M. Pardini (Genoa, IT)
- P519 Physical exercise and cognitive training improve self-perceived cognitive deficits and information processing speed in multiple sclerosis**
M. Filser (Düsseldorf, DE)
- P520 A 5-year follow-up study of the correlation between quality of life and the symbol digit modalities test**
L. Querol (BARCELONA, ES)
- P521 Premorbid physical activity, cognitive reserve and trait personality modulate rehabilitation effect in multiple sclerosis**
L. Prosperini (Rome, IT)
- P522 A randomized trial of cognitive behavioural therapy for improving psychological distress and cognitive impairments in multiple sclerosis**
M. Bermúdez Hernández (Santa Cruz de Tenerife, ES)
- P523 Cognitive impairment in benign MS: a multiparametric structural and functional MRI study**
M.A. Rocca (Milan, IT)

Scientific Programme

- P524 Cognitive decline in MS over a period of six years: subtle or substantial?**
M. Huiskamp (Amsterdam, NL)
- P525 Environmental and lifestyle risk factors for cognitive impairment in multiple sclerosis**
I. Righini (Florence, IT)
- P526 Cognitive dysfunction in patients with multiple sclerosis: evaluation of cognitive reserve and other predictive factors**
N. Cerdá Fuertes (Basel, CH)
- P527 Employment status of people with multiple sclerosis in Argentina**
S. Vanotti (CABA, AR)
- P528 Putaminal and hippocampal involvement in cognitive performance: BICAMS and MRI assessment of multiple sclerosis patients without self-reported cognitive deficits**
A. Sartori (Trieste, IT)
- P529 Serum intestinal fatty acid binding protein in multiple sclerosis as a marker of intestinal barrier integrity**
C. Camara (Calgary, CA)
- P530 Relationship between serum neurofilament light chain levels and cognitive decline over 9-years follow-up in patients after first demyelinating event suggestive of MS**
T. Uher (Prague, CZ)
- P531 Cerebrospinal fluid biomarkers dissect extreme phenotypes of clinically isolated syndrome and early multiple sclerosis**
F. Luessi (Mainz, DE)
- P532 Temporal relationship of serum neurofilament light levels and radiological disease activity in patients with multiple sclerosis**
R.J. Fox (Cleveland, US)
- P533 Spatial distribution of MS lesions: new insights into white matter damage**
C. Tur (London, UK)
- P534 Relationship between pathogenesis of spasticity in patients with secondary-progressive multiple sclerosis and neuromediators level: double-blind placebo-control study**
I. Korzhova (Moscow, RU)
- P535 Kappa free light chains Index: a diagnostic tool to assess intrathecal immunoglobulin synthesis in multiple sclerosis**
C. Bosa (Torino, IT)
- P536 CSF neurofilament light concentration reflects cognitive impairment in multiple sclerosis**
L. Gaetani (Perugia, IT)
- P537 Ganglion cell layer volume and serum neurofilaments are associated with disability in multiple sclerosis**
G. Mickeliunas (Basel, CH)

Scientific Programme

- P538** **Age immune related changes in multiple sclerosis according with their oligoclonal IgM band status**
C. Picón (Madrid, ES)
- P539** **International multi-site analytical validation of the Simoa NF-light assay in human serum samples from multiple sclerosis patients**
J. Kuhle (Basel, CH)
- P540** **Association between multimodal evoked potentials, lesion burden and brain volumes in multiple sclerosis: searching for early axonal damage markers**
V.E. Fernández Sánchez (Málaga, ES)
- P541** **mRNA-sequencing of blood platelets as a novel biomarker in multiple sclerosis**
J. Killestein (Amsterdam, NL)
- P542** **New TRIDENT proteomic approach of CSF analysis at MS diagnosis: identification of complement and coagulation pathway associated to cortical damage**
R. Magliozzi (Verona, IT)
- P543** **Cerebrospinal fluid biomarkers of inflammation and neurodegeneration in acute optic neuritis**
M.N. Olesen (Odense, DK)
- P544** **A wide cytokine analysis in cerebrospinal fluid at diagnosis identified MIP-1 α as possible prognostic factor for multiple sclerosis**
M. Puthenparampil (Padova, IT)
- P545** **The effect of disease modifying therapies on CD62L expression in multiple sclerosis**
M.M. Voortman (Graz, AT)
- P546** **Multicenter sensory and motor evoked potentials: sample size estimation for differences in group change**
M. Hardmeier (Basel, CH)
- P547** **Relapse-associated worsening and progression independent of relapse activity in patients with relapsing multiple sclerosis in the Phase III OPERA I and OPERA II studies**
L. Kappos (Basel, CH)
- P548** **Early versus delayed initiation of fingolimod or dimethyl fumarate in relapsing-remitting multiple sclerosis**
J. Lorscheider (Basel, CH)
- P549** **CLARITY: an analysis of severity and frequency of relapses in patients with relapsing-remitting multiple sclerosis treated with cladribine tablets or placebo**
S. Schippling (Zurich, CH)
- P550** **Poly I: C-mediated TLR3 agonism re-establishes CNS immune surveillance in the setting of α 4-integrin deficiency - implications for natalizumab-associated PML**
O. Stuve (Dallas, US)

Scientific Programme

- P551 Safety, tolerability, pharmacokinetics and concentration-QT analysis of the novel BTK inhibitor evobrutinib (M2951) in healthy volunteers**
A. Becker (Darmstadt, DE)
- P552 ADA genetic variants influence central inflammation and clinical characteristics in MS: implications for cladribine treatment**
D. Centonze (Rome, IT)
- P553 No correlation between lymphocyte repopulation kinetics and MS disease activity following alemtuzumab treatment in patients with relapsing-remitting multiple sclerosis**
H. Wiendl (Münster, DE)
- P554 Impact of rituximab on Treg lymphocytes in MS patients**
E. Maillart (Paris, FR)
- P555 Comparison of high-dose intravenous corticosteroids and therapeutic plasma exchange in acute relapsing multiple sclerosis**
L. Lammerding (Muenster, DE)
- P556 Ozanimod-treated patients exhibited improvements in cognitive processing speed in the phase 3 SUNBEAM trial of relapsing multiple sclerosis (RMS)**
J. DeLuca (West Orange, US)
- P557 BTK inhibition prevents inflammatory macrophage differentiation: a potential role in MS**
J. Bruttger (Darmstadt, DE)
- P558 Effects of natalizumab on work ability in patients with relapsing-remitting multiple sclerosis: results from the WANT observational study**
R. Capra (Montichiari, IT)
- P559 Mechanism of action of teriflunomide in multiple sclerosis**
S. Medina (Madrid, ES)
- P560 Comparative effectiveness and discontinuation of dimethyl fumarate and fingolimod in clinical practice at 36-month follow-up**
C. Hersh (Las Vegas, US)
- P561 Cardiac safety profile of ozanimod in pooled phase 3 studies in relapsing multiple sclerosis (SUNBEAM and RADIANCE)**
B.A. Cree (San Francisco, US)
- P562 Comparison of rituximab vs fingolimod, dimethyl fumarate and natalizumab in the treatment of multiple sclerosis: two year experience**
B. Vollmer (Aurora, US)
- P563 Influences upon healthcare professionals' prescribing of disease modifying treatments for multiple sclerosis in the United Kingdom: a National Survey**
D. Rog (Salford, UK)

Scientific Programme

- P564 Sustained efficacy in relapsing remitting multiple sclerosis following switch to placebo treatment from cladribine tablets in patients with high disease activity at baseline**
P. Vermersch (Lille, FR)
- P565 Double-blind controlled randomised trial of plasma exchanges compared to sham-plasma exchanges in moderate to severe relapses of multiple sclerosis**
B. Brochet (Bordeaux, FR)
- P566 Fingolimod therapy increases serum interleukin 7 levels without altering peripheral homeostatic proliferation in multiple sclerosis patients**
I. Jelcic (Zurich, CH)
- P567 Autologous stem cell transplantation in multiple sclerosis: the London experience**
E. Rhone (London, UK)
- P568 The POINT study: a randomized, double-blind, parallel-group, add-on, superiority phase 3 study to compare the efficacy and safety of ponesimod to placebo in subjects with active relapsing multiple sclerosis who are treated with dimethyl fumarate**
L. Kappos (Basel, CH)
- P569 Hypothesis: chronic progression of MS results from activity of LLPCs even after aggressive B-cell depletion therapy**
C. Mora (Washington, US)
- P570 Effects of real life use of oral disease modifying treatments for relapsing-remitting multiple sclerosis in Austria over one year**
M. Guger (Linz, AT)
- P571 Clinical trials of disease-modifying agents in pediatric MS: opportunities, challenges and recommendations from the International Pediatric MS Study Group (IPMSSG)**
E. Waubant (San Francisco, US)
- P572 Treatment with alemtuzumab after fingolimod in relapsing-remitting multiple sclerosis is effective and safe**
C. Alcalá (Valencia, ES)
- P573 Patient initiation of fingolimod treatment in clinics and in the Gilenya@Home Program: baseline heart rate data for the first-dose adverse cardiac effects subgroup**
J. Osborne (Grapevine, US)
- P574 Establish tolerance in MS with myelin-peptide coupled red blood cells - ETIMSredtrial**
A. Lutterotti (Zurich, CH)
- P575 Inhibition of Bruton's tyrosine kinase selectively prevents antigen-activation of B cells and ameliorates B cell-mediated experimental autoimmune encephalomyelitis**
S. Torke (Gottingen, DE)

Scientific Programme

- P576 Real-world experience of the effectiveness, safety and tolerability of dimethyl fumarate in Barts Health MS cohort**
K. Allen-Philbey (London, UK)
- P577 Evidence-based patient information handbooks on immunotherapies - a nationwide German project**
A.C. Rahn (Hamburg, DE)
- P578 An increase in chemokine, CXCL1 with ERβ ligand treatment potentially stimulates axon myelination in a mouse model of multiple sclerosis**
H. Karim (Riverside, US)
- P579 Clean-surfaced, faceted gold nanocrystals stimulate the differentiation of oligodendrocyte precursor cells by up-regulating genes involved in oligodendrocyte myelination**
D. Fantini (Salt Lake City, US)
- P580 Efficacy of dimethyl-fumarate in preventing grey matter pathology in multiple sclerosis**
C. Zuco (Verona, IT)
- P581 Circulating T cells of fingolimod treated patients with MS secrete an increased BDNF levels**
A. Karni (Tel Aviv, IL)
- P582 Sigma 1 receptor and melanocortin receptor agonists protect oligodendroglia from death induced by products of B cells from multiple sclerosis patients**
R. Lisak (Detroit, US)
- P583 Mir-219 enriched exosomes decrease experimental autoimmune encephalomyelitis symptoms after intranasal administration**
I. Osorio-Querejeta (San Sebastián, ES)
- P584 Early treatment with Natalizumab prevents cortical gray matter atrophy: a two-year prospective study in relapsing-remitting multiple sclerosis patients**
L. Orbach (Tel-Aviv, IL)
- P585 Real-world effectiveness of MD1003 (high dose pharmaceutical grade biotin) in patients with progressive MS**
A. Tourbah (Reims, FR)
- P586 Effect of teriflunomide on oxidative stress-mediated alterations of CNS mitochondria**
B. Malla (Berlin, DE)
- P587 Extended interval dosing of natalizumab: is efficacy preserved?**
M. Clerico (Orbassano, IT)
- P588 Long-term reduction in brain MRI disease activity and atrophy after 5 years of ocrelizumab treatment in patients with relapsing multiple sclerosis**
D.L. Arnold (Montreal, CA)

Scientific Programme

- P589** **Twenty-five years of continuous treatment of multiple sclerosis with glatiramer acetate: long-term clinical results of the US open-label extension study**
C. Ford (Albuquerque, US)
- P590** **Long-term reduction of relapse rate and confirmed disability progression after 5 years of ocrelizumab treatment in patients with relapsing multiple sclerosis**
S. Hauser (San Francisco, US)
- P591** **Treatment effectiveness in relapsing remitting multiple sclerosis patients treated for 5 years with fingolimod in clinical practice: interim results from the observational study PANGAEA**
U. Schulze-Topphoff (Nuremberg, DE)
- P592** **Effect of MD1003 (high dose pharmaceutical grade biotin) for the treatment of progressive MS: 48-month follow-up data**
A. Tourbah (Reims, FR)
- P593** **Utilization, safety and tolerability of ocrelizumab: year 1 data from the Providence Ocrelizumab Registry**
K. Smoot (Portland, US)
- P594** **Radiological findings suggest long-term treatment with delayed-release dimethyl fumarate is associated with tissue and axonal preservation**
D.L. Arnold (Montreal, CA)
- P595** **Real-world efficacy of delayed-release dimethyl fumarate in early multiple sclerosis: interim results from ESTEEM**
R. Macdonell (Melbourne, AU)
- P596** **German real-world data from over 10 years in the TYSABRI® Observational Program: long-term effectiveness of natalizumab treatment in German patients with relapsing-remitting MS**
S. Meuth (Münster, DE)
- P597** **Natalizumab is associated with a reduction in relapse-related hospitalisations and steroid treatment in relapsing-remitting multiple sclerosis patients enrolled in the TYSABRI® Observational Program**
M. Trojano (Bari, IT)
- P598** **Providence Dimethyl Fumarate Registry: year five results on discontinuation and treatment outcomes**
K. Smoot (Portland, US)
- P599** **Initiation of the first disease-modifying treatment for multiple sclerosis patients in the Czech Republic - data from the national registry ReMuS**
D. Horáková (Prague, CZ)
- P600** **Pregnancy outcomes in patients with multiple sclerosis and other autoimmune diseases treated with ocrelizumab in clinical trials and post-marketing studies**
S. Vukusic (Lyon, FR)

Scientific Programme

- P601** **Effect of age on clinical outcomes in patients treated with fingolimod: pooled analysis of real-world phase iv studies**
T. Chitnis (Boston, US)
- P602** **Safety of fingolimod in RRMS patients treated for up to 5 years in real world: interim results from the non-interventional PANGAEA study**
B. Eitle (Nuremberg, DE)
- P603** **Pregnancy outcomes from an international registry of patients treated with delayed-release dimethyl fumarate**
N.J. Everage (Cambridge, US)
- P604** **Incidence of natalizumab-associated progressive multifocal leucoencephalopathy and its relationship with the pattern of natalizumab exposure over time**
G. Giovannoni (London, UK)
- P605** **Diffuse necrotising leuko-encephalopathy after treatment with alemtuzumab and imiquimod**
N.J.J. MacDougall (Glasgow, UK)
- P606** **Influence of natalizumab extended interval dosing on the PML risk biomarker L-Selectin**
N. Schwab (Muenster, DE)
- P607** **Pancytopenia, evening fever and hepatosplenomegaly in a Fingolimod treated-woman**
M. Gomez-Moreno (Madrid, ES)
- P608** **The results of a 24-month controlled, prospective study of relapsing MS patients at risk for PML who switched from long term natalizumab to teriflunomide**
K. Edwards (Latham, US)
- P609** **Reduction of the risk of PML in natalizumab treated MS patients in Sweden: an effect of JCV ab index surveillance**
S. Kåggström (Stockholm, SE)
- P610** **Determinants of MS re-activation after discontinuing therapies**
T. Kalincik (Melbourne, AU)
- P611** **Minimal impact of anti-alemtuzumab antibodies on the pharmacodynamics and efficacy of alemtuzumab in RRMS patients from the CARE-MS studies**
A. Jacobs (Cambridge, US)
- P612** **CD4+CD62L+cells could be a useful biomarker for monitoring intermittent drug holidays of fingolimod administration**
M. Tanaka (Kyoto, JP)
- P613** **Evolution of anti-JCV index with natalizumab treatment for multiple sclerosis: a retrospective, longitudinal study**
P. Ananthavarathan (Birmingham, UK)

Scientific Programme

- P614 Two cases of atypical psychiatric presentations after ocrelizumab induction with near complete resolution**
J. Claunch (Worcester, US)
- P615 Shared decision making; is it truly 'shared' in multiple sclerosis? The neurologist, nurse, & patient perspective**
M. Osborne (Brisbane, AU)
- P616 A modified premedication protocol significantly reduces ocrelizumab-induced infusion reactions**
W. Conte (Chicago, US)
- P617 A real-world comparison of infection rate and lymphocyte counts among relapsing-remitting multiple sclerosis patients 50 years or older treated with subcutaneous interferon beta-1a or dimethyl fumarate**
S. Cardoso (Foxboro, US)
- P618 Safety liver profile of teriflunomide versus interferon β in multiple sclerosis: systematic review and indirect comparison meta-analysis**
P.A. Ortiz Salas (Bogota, CO)
- P619 Ocrelizumab treatment effect on upper limb function in PPMS patients with disability: subgroup results of the ORATORIO study to inform the ORATORIO-HAND study design**
G. Giovannoni (London, UK)
- P620 Analysis of a biomarker signature (TLR2, TLR4 and CCR1) by flow cytometry in patients with relapsing-remitting multiple sclerosis treated with fingolimod**
D. Haegert (Montreal, CA)
- P621 Measuring disease activity in multiple sclerosis: the essential role of spinal cord MRI monitoring**
S. Ruggieri (Rome, IT)
- P622 Fingolimod may exert a neuroprotective role at retinal level in multiple sclerosis when compared to first-line injectable treatments**
S. Guerrieri (Milan, IT)
- P623 Detecting response to fampridine on motor functioning with activities of daily living and classical neurological examinations in multiple sclerosis patients**
C.E. van Munster (Amsterdam, NL)
- P624 FLOODLIGHT: smartphone-based self-monitoring is accepted by patients and provides meaningful, continuous digital outcomes augmenting conventional in-clinic multiple sclerosis measures**
X. Montalban (Toronto, CA)
- P625 Searching for predictors of response to high-efficacy therapies in relapsing-remitting multiple sclerosis: results from a single centre cohort**
L. Mitjana (Barcelona, ES)
- P626 Brain network response upon natalizumab versus dimethylfumarate in multiple sclerosis**
M. Muthuraman (Mainz, DE)

Scientific Programme

- P627** **Lymphocyte dynamics are not associated with disease activity in patients switching to alemtuzumab from fingolimod and injectable treatments**
T. Williams (London, UK)
- P628** **Additional courses of alemtuzumab improved clinical and MRI outcomes in pooled CARE-MS I and II patients with disease activity after three courses: analysis of patients who received ≥ 4 courses**
S. Schippling (Zurich, CH)
- P629** **FLX-787 significantly reduces muscle cramp/spasm frequency and improves spasticity in a phase 2 study (Flex-201) in patients with multiple sclerosis**
G. Short (Boston, US)
- P630** **Efficacy of prolonged-release fampridine vs placebo on walking ability, dynamic and static balance and quality-of-life: an integrated analysis of MOBILE and ENHANCE**
R. Hupperts (Maastricht, NL)
- P631** **The effects of default mode network functional connectivity modulation on cognition and quality of life of people with relapsing-remitting multiple sclerosis**
R. Manca (Sheffield, UK)
- P632** **Effects and mechanisms of cued and non-cued motor imagery in people with multiple sclerosis: a randomised controlled trial**
B. Seebacher (Eastbourne, UK)
- P633** **Characteristics of MS patients treated with fampridine in a real-world setting based on the NeuroTransData network in Germany**
S. Braune (Prien, DE)
- P634** **Modulation of cortico-subcortical functional connectivity occurs after symptomatic treatment of fatigue in patients with multiple sclerosis**
M.A. Rocca (Milan, IT)
- P635** **Year one interim analysis results of the Phase IIIb CHORDS study evaluating ocrelizumab effectiveness and safety in patients with relapsing-remitting multiple sclerosis who had suboptimal response with prior disease-modifying treatments**
T. Leist (Philadelphia, US)
- P636** **Plasma exchange as rescue treatment in children with CNS inflammatory demyelinating syndromes**
S. Tenembaum (Buenos Aires, AR)
- P637** **Healthcare resource use and disease progression among commercially insured patients with multiple sclerosis: a comparison of continuous users and non-users of disease modifying therapy over five years (2012-2016)**
M. Williams (Atlanta, US)
- P638** **The effects of an innovative combined Robot Assisted Gait Training and Virtual Reality on cognitive impairments and motor deficits in patients with multiple sclerosis: a pilot randomized control trial**
D. Munari (Verona, IT)

Scientific Programme

- P639 Subgroup analysis to evaluate the efficacy of ocrelizumab versus interferon β -1a in African-descended patients with relapsing multiple sclerosis in the OPERA I and OPERA II studies**
B.A. Cree (San Francisco, US)
- P640 Real-world treatment utilization and effectiveness of onabotulinumtoxinA in multiple sclerosis patients treated for spasticity from the ASPIRE study**
D.S. Bandari (Newport Beach, US)
- P641 Dimethyl fumarate treatment in relapsing multiple sclerosis: a prospective observational postmarketing study of effectiveness**
Y. Aladro Benito (Getafe, ES)
- P642 Exit strategies for “needle fatigue” in multiple sclerosis: a propensity score-matched comparison study**
L. Prosperini (Rome, IT)
- P643 A modified Mediterranean dietary intervention for multiple sclerosis: results of a pilot study and lessons learned for future dietary research in MS**
I. Katz Sand (New York, US)
- P644 Multiple sclerosis, fatigue and disease modifying therapy impact: differences in sleep architecture in patients with multiple sclerosis - Copaxone versus interferons**
J. Srinivasan (Patchogue, US)
- P645 Usability of an educational intervention to overcome therapeutic inertia in multiple sclerosis care**
G. Saposnik (Toronto, CA)
- P646 A patient survey on the initiation and switch of disease-modifying drugs for multiple sclerosis in Sapporo, Japan: the current status and challenges regarding patient's preference and shared-decision making**
K. Nishiyama (Sapporo, JP)
- P647 Preferences of German physicians for features of injectable, oral, and infused disease-modifying treatments for relapsing-remitting multiple sclerosis**
C. Wakeford (Cambridge, US)
- P648 Family planning and pregnancy in multiple sclerosis**
I.A. Ionescu (Bucharest, RO)
- P649 Fecal microbial transplantation in multiple sclerosis: trial design**
A. Wing (London, CA)

Scientific Programme

18:15 - 19:15

Satellite Symposium, Hall A

Satellite Symposium 3: Disease activity: can starting early with effective treatment offer better outcomes in MS?

Supported by Roche

Chairs

H.-P. Hartung (Düsseldorf, DE)

18:15 - 18:20 117

Welcome and introduction

H.-P. Hartung (Düsseldorf, DE)

18:20 - 18:35 118

Treating disease activity earlier: evidence for long-term benefits

M. Tintoré (Barcelona, ES)

18:35 - 18:55 119

Ocrelizumab: growing evidence from clinical trials on longer term outcomes

A. Chan (Bern, CH)

18:55 - 19:10 120

Clinical perspectives: putting early, effective treatment into clinical practice

R. Bermel (Cleveland, US)

19:10 - 19:15 121

Conclusions

H.-P. Hartung (Düsseldorf, DE)

M. Tintoré (Barcelona, ES)

A. Chan (Bern, CH)

R. Bermel (Cleveland, US)

18:15 - 19:15

Satellite Symposium, Hall B

Satellite Symposium 4: Committing to generations, impacting patients: advancing disease management across the continuum of MS

Supported by Novartis Pharma AG

Chairs

R. Gold (Bochum, DE)

18:15 - 18:20 122

Chair's opening and welcome

R. Gold (Bochum, DE)

18:20 - 18:35 123

Acting early: new evidence in the treatment of paediatric-onset MS

B. Banwell (Philadelphia, US)

18:35 - 18:50 124

Seizing the opportunity: establishing early and effective disease control in adult-onset RRMS

T. West (San Francisco, US)

18:50 - 19:05 125

Debating concepts in advanced disease: where does SPMS fit in the MS disease continuum?

J. Overell (Glasgow, UK)

T. Kalincik (Melbourne, AU)

Scientific Programme

19:05 - 19:15	126	Panel discussion and closing remarks R. Gold (Bochum, DE)
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Scientific Programme

Thursday, 11 October 2018

07:30 - 08:30		Satellite Symposium, Hall B Satellite Symposium 5: Disease progression: changing how we think about MS Supported by Roche Chairs G. Giovannoni (London, UK)
07:30 - 07:35	127	Introduction G. Giovannoni (London, UK)
07:35 - 07:50	128	Future perspectives on MS disease progression G. Giovannoni (London, UK)
07:50 - 08:05	129	The MS continuum: current insights from biology, pathology and imaging A. Gass (Mannheim, DE)
08:05 - 08:20	130	Clinical perspectives: changing how we measure and treat MS disease progression J. Overell (Glasgow, UK)
08:20 - 08:30	131	Conclusions A. Gass (Mannheim, DE) J. Overell (Glasgow, UK) G. Giovannoni (London, UK)
08:00 - 09:30		Educational Session, Hall D Educational Session 15: Disease modifying treatments in MS Level: Basic Chairs H.-P. Hartung (Düsseldorf, DE) T. Derfuss (Basel, CH)
08:00 - 08:30	132	Disease modifying treatments for relapsing MS H.-P. Hartung (Düsseldorf, DE)
08:30 - 09:00	133	Treatment approaches to progressive MS T. Derfuss (Basel, CH)
09:00 - 09:30	134	Risks, risk management and the choice of treatments for MS G. Giovannoni (London, UK)

Scientific Programme

08:00 - 09:30

Educational Session, Hall E

Educational Session 16 (RIMS): Symptomatic treatment of MS: how to manage pain/bladder/bowel/sexual dysfunction?

Level: Basic

Chairs

P.L. Eelen (Melsbroek, BE)
R. Moss Morris (London, UK)

08:00 - 08:30

135

Management of bladder and bowel problems in multiple sclerosis

P.L. Eelen (Melsbroek, BE)

08:30 - 09:00

136

Treatment of sexual dysfunction

C.A. Young (Liverpool, UK)

09:00 - 09:30

137

Pain management

R. Moss Morris (London, UK)

08:30 - 09:30

Free Communications, Hall A

Free Communications 1: New diagnostic criteria

Chairs

R.A. Marrie (Winnipeg, CA)
R. Milo (Ashkelon, IL)

08:30 - 08:42

138

The central vein sign on cerebral 3T MRI in multiple sclerosis - a multi-center investigation under the auspices of the MAGNIMS study group

T. Sinnecker (Basel, CH)

08:42 - 08:54

139

Application of the 2017 revisions to the McDonald criteria in the clinical practice: comparison with the 2010 diagnostic criteria at the time of the CIS

G. Arrambide (Barcelona, ES)

08:54 - 09:06

140

Application of the 2017 revised McDonald criteria for multiple sclerosis to patients with a typical clinically isolated syndrome

R.M. van der Vuurst de Vries (Rotterdam, NL)

09:06 - 09:18

141

Performance of the revised McDonald 2017 criteria in patients with clinically isolated syndromes suggestive of multiple sclerosis

W. Brownlee (London, UK)

09:18 - 09:30

142

Improved performance of the 2017 McDonald criteria for diagnosis of multiple sclerosis in children irrespective of age

Y. Hacohen (London, UK)

Scientific Programme

08:30 - 09:30

Free Communications, Hall B

Free Communications 2: Clinical

Chairs

A. Miller (Haifa, IL)
F. Then Bergh (Leipzig, DE)

08:30 - 08:42 143

Week 48 results from a phase IIb trial of GNBAC1 in patients with relapsing remitting multiple sclerosis (CHANGE-MS; clinical trial assessing the HERV-W Env antagonist GNBAC1 for Efficacy in MS)

H.-P. Hartung (Düsseldorf, DE)

08:42 - 08:54 144

Causes that contribute to deaths due to multiple sclerosis: analyses of population-based multiple-cause-death data

K. Harding (Cardiff, UK)

08:54 - 09:06 145

Impact of early treatment initiation on personal income of multiple sclerosis patients

A. Kavaliunas (Stockholm, SE)

09:06 - 09:18 146

Increased risk of comorbidities in patients before as well as after multiple sclerosis (MS) diagnosis: a study in the UK Clinical Practice Research Datalink (CPRD)

S. Jick (Boston, US)

09:18 - 09:30 147

Effect of vascular comorbidities on disability progression in multiple sclerosis: a Portuguese multicentric study

A.S. Correia (Lisboa, PT)

08:30 - 09:30

Free Communications, Hall C

Free Communications 3: Neuroimmunology

Chairs

J.S. Wolinsky (Houston, US)
K. Gross-Paju (Tallinn, EE)

08:30 - 08:42 148

Dietary modification reduces multiple sclerosis-like disease in adult marmoset monkeys

Y.S. Kap (Rijswijk, NL)

08:42 - 08:54 149

Direct modulation of microglia activity in the CNS by regulatory T lymphocytes

S. Bittner (Mainz, DE)

08:54 - 09:06 150

Nile red spectral microscopy reveals subtle biochemical defects in lipids in the MS brain

W. Teo (Calgary, CA)

09:06 - 09:18 151

B - T cell interactions activate and maintain brain-homing T cells in multiple sclerosis

I. Jelcic (Zurich, CH)

Scientific Programme

09:18 - 09:30	152	Characterisation of AQP4-specific T-cells in AQP4 and MOG antibody positive NMOSD patients L. Hofer (Innsbruck, AT)
Scientific Session, Hall A		
10:00 - 11:30		Scientific Session 5: Predicting the course of newly diagnosed patients: insights from cohorts Chairs B. Uitdehaag (Amsterdam, NL) M. Trojano (Bari, IT)
10:00 - 10:20	153	The German national MS cohort R. Gold (Bochum, DE)
10:20 - 10:40	154	The Barcelona cohort M. Tintoré (Barcelona, ES)
		Platform presentations of related original papers
10:40 - 10:52	155	Early cortical pathology and early relapses predict the risk of developing secondary progressive MS A. Scafari (London, UK)
10:52 - 11:04	156	Scoring the 10-year risk of ambulatory disability in DMD-treated multiple sclerosis patients: the RoAD score C. Gasperini (Rome, IT)
11:04 - 11:16	157	Early MRI predictors of long-term multiple sclerosis outcomes: a 30-year follow-up study of people presenting with clinically isolated syndromes K. Chung (London, UK)
11:16 - 11:28	158	Serum neurofilament light (NfL) for disease prognosis and treatment monitoring in multiple sclerosis patients: is it ready for implementation into clinical care? P. Calabresi (Baltimore, US)
Scientific Session, Hall B		
10:00 - 11:30		Scientific Session 6: VISION research in MS: state of the art and future prospects Chairs P. Calabresi (Baltimore, US) F. Paul (Berlin, DE)
10:00 - 10:20	159	Vision research in MS: what's been done so far A. Petzold (London, UK)
10:20 - 10:40	160	New technologies and challenges in vision research S. Saidha (Baltimore, US)

Scientific Programme

Platform presentations of related original papers

10:40 - 10:52	161	Retinal dynamics revealed by optical coherence tomography predict neuronal loss in experimental autoimmune encephalomyelitis A. Cruz-Herranz (San Francisco, US)
10:52 - 11:04	162	Optimal inter-eye difference thresholds in retinal nerve fiber layer and ganglion cell layer thickness for predicting a unilateral optic nerve lesion in multiple sclerosis: an international collaborative study R.C. Nolan (New York, US)
11:04 - 11:16	163	Relationship between retinal inner nuclear layer thickness and age in progressive multiple sclerosis M. Cellerino (Genova, IT)
11:16 - 11:28	164	Association of contrast sensitivity vision test with clinical and MRI metrics in multiple sclerosis B. Moss (Cleveland, US)

Scientific Session, Hall C

10:00 - 11:30 **Scientific Session 7: Environmental risk factors of MS**

Chairs

A. Ascherio (Boston, US)
M.P. Amato (Florence, IT)

10:00 - 10:20	165	Environmental and lifestyle factors I. Kockum (Stockholm, SE)
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10:20 - 10:40	166	Emerging risk factors: what is the evidence? R.A. Linker (Erlangen, DE)
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Platform presentations of related original papers

10:40 - 10:52	167	Molecular mimicry between the autoantigen Anoctamin 2 and Epstein Barr virus nuclear antigen 1 associates with increased risk for multiple sclerosis T. Olsson (Stockholm, SE)
10:52 - 11:04	168	Multiple sclerosis among first- and second-generation immigrants in Denmark. A population-based cohort study. N.M. Nielsen (Copenhagen, DK)
11:04 - 11:16	169	Higher body mass index, but not vitamin D status, is associated with greater subsequent loss of brain gray matter volume in multiple sclerosis E. Mowry (Baltimore, US)
11:16 - 11:28	170	Predicting the course of CIS patients adding modifiable environmental factors such as smoking and vitamin D M. Tintoré (Barcelona, ES)

Scientific Programme

		Educational Session, Hall D
10:00 - 11:30		Educational Session 17: MS pathology for clinical neurologists
		Level: Basic
		Chairs
		W. Brück (Göttingen, DE)
		C. Stadelmann (Göttingen, DE)
10:00 - 10:30	171	The white matter lesion in MS
		W. Brück (Göttingen, DE)
10:30 - 11:00	172	The grey matter lesion in multiple sclerosis
		C. Stadelmann (Göttingen, DE)
11:00 - 11:30	173	Inflammatory demyelination spectrum
		R. Höftberger (Vienna, AT)
		Educational Session, Hall E
10:00 - 11:30		Educational Session 18: Experimental neuroimmunology
		Level: Advanced
		Chairs
		A. Flügel (Göttingen, DE)
		T. Kuhlmann (Münster, DE)
10:00 - 10:30	174	Immunopathogenesis in CNS autoimmunity: lessons from animal models
		A. Flügel (Göttingen, DE)
10:30 - 11:00	175	Experimental MS models and their relation to the human disease
		T. Kuhlmann (Münster, DE)
11:00 - 11:30	176	Blood-brain barrier autoimmune function and dysfunction in CNS autoimmunity
		B. Engelhardt (Bern, CH)
		Meet the Expert, Meeting Room M4
10:00 - 11:00		Meet the Expert 1: Clinical treatment issues in NMO
		Chairs
		J. Palace (Oxford, UK)
		R. Marignier (Lyon, FR)

Scientific Programme

		Hot Topic, Hall A
11:45 - 12:30		Hot Topic 6: "Hitting hard and early" or stepwise escalation: What is the best strategy?
		Chairs
		S. Hauser (San Francisco, US)
		A. Siva (Istanbul, TR)
11:45 - 12:00	177	Immunological rationale
		P.A. Muraro (London, UK)
12:00 - 12:15	178	Immune reconstitution therapy: pressing the reset button
		G. Giovannoni (London, UK)
12:15 - 12:30	179	Escalation therapy: staying on the safe side
		D. Ontaneda (Cleveland, US)
		Hot Topic, Hall B
11:45 - 12:30		Hot Topic 7: Imaging of neuronal structure and function to understand disease progression
		Chairs
		C. Enzinger (Graz, AT)
		P. Matthews (London, UK)
11:45 - 12:00	180	Longitudinal fMRI
		M.A. Rocca (Milan, IT)
12:00 - 12:15	181	MRI-pathological correlation
		J. Geurts (Amsterdam, NL)
12:15 - 12:30	182	Advanced imaging of neurodegeneration
		F. Barkhof (London, UK)
		Hot Topic, Hall C
11:45 - 12:30		Hot Topic 8: Emerging high throughput technologies: challenges and opportunities
		Chairs
		T. Olsson (Stockholm, SE)
		S.E. Baranzini (San Francisco, US)
11:45 - 12:00	183	Affinity proteomics for array based profiling of autoantibody repertoires
		P. Nilsson (Solna, SE)
12:00 - 12:15	184	High-dimensional cytometry for immunophenotyping
		B. Becher (Zurich, CH)
12:15 - 12:30	185	Multi-Omics approaches for glia
		F. Quintana (Boston, US)

Scientific Programme

11:45 - 12:30		Hot Topic, Hall D
		Hot Topic 9: Science & art of symptomatic treatment
		Chairs
		T. Berger (Innsbruck, AT)
		O. Fernández (Málaga, ES)
11:45 - 12:00	186	Biological basis for brain reserve
		F. Zipp (Mainz, DE)
12:00 - 12:15	187	Depression and fatigue: how to break the vicious circle
		A. Feinstein (Toronto, CA)
12:15 - 12:30	188	Grand perspective on tackling motor impairment
		A.J. Thompson (London, UK)
		Educational Session, Hall E
11:45 - 12:45		Case-based Educational Session 19: Paediatric MS
		Chairs
		T. Chitnis (Boston, US)
		J. Gärtner (Göttingen, DE)
11:45 - 12:15	189	What's in a name? Paediatric MS or another diagnosis?
		T. Chitnis (Boston, US)
12:15 - 12:45	190	Treatment of highly active paediatric MS and potential treatment failures
		J. Gärtner (Göttingen, DE)
		Meet the Expert, Meeting Room M4
12:00 - 13:00		Meet the Expert 2: Differential diagnosis
		Chairs
		M. Tintoré (Barcelona, ES)
		O. Ciccarelli (London, UK)
		Satellite Symposium, Hall A
13:00 - 14:00		Satellite Symposium 6: Evolving MS treatment with immune reconstitution therapy
		Supported by Merck
		Chairs
		G. Giovannoni (London, UK)
	191	Welcome
		G. Giovannoni (London, UK)

Scientific Programme

13:00 - 13:10	192	Immune reconstitution therapies in MS treatment O. Stuve (Dallas, US)
13:10 - 13:25	193	Durable efficacy of B- and T-cell targeting IRT: focus on Cladribine Tablets A. Chan (Bern, CH)
13:25 - 13:40	194	Safety profile of IRT: what did we learn from Cladribine Tablets? M. Duddy (Newcastle upon Tyne, UK)
13:40 - 13:55	195	Does the selectivity of Cladribine Tablets explain the long-term clinical outcomes? G. Giovannoni (London, UK)
13:55 - 14:00	196	Concluding remarks G. Giovannoni (London, UK)
13:00 - 14:00		Satellite Symposium, Hall B Satellite Symposium 7: Committing to patients, impacting individuals: towards an individualised approach for patients with MS Supported by Novartis Pharma AG Chairs H. Wiendl (Münster, DE)
13:00 - 13:05	197	Chair's opening and welcome H. Wiendl (Münster, DE)
13:05 - 13:25	198	Fine-tuning care: biomarkers of disease prognosis and treatment response J. Palace (Oxford, UK)
13:25 - 13:45	199	Ready for the mainstream? Neurofilaments as a biomarker in routine MS practice (debate) F. Piehl (Stockholm, SE) M.P. Sormani (Genoa, IT)
13:45 - 14:00	201	Panel discussion and closing remarks H. Wiendl (Münster, DE)
14:15 - 15:45		Scientific Session, Hall A Scientific Session 8: When to start and when to stop immunomodulatory treatment in MS Chairs G. Edan (Rennes, FR) E. Maillart (Paris, FR)

Scientific Programme

14:15 - 14:35	202	Indications and options for early immunomodulatory therapy H.-P. Hartung (Düsseldorf, DE)
14:35 - 14:55	203	When to stop immunotherapy? J. Corboy (Denver, US)
		Platform presentations of related original papers
14:55 - 15:07	204	The optimal time to start treatment in relapsing remitting multiple sclerosis patients: results from the Big Multiple Sclerosis Data Network P. Iaffaldano (BARI, IT)
15:07 - 15:19	205	Plasma neurofilament light levels segregate treatment effects: results from the IMSE studies with multiple disease modulatory drugs B. Delcoigne (Stockholm, SE)
15:19 - 15:31	206	Recurrence of disease activity after fingolimod discontinuation - observations in a real-world cohort with 433 multiple sclerosis patients N. Cerda (Basel, CH)
15:31 - 15:43	207	Disease activity during pregnancy after fingolimod withdrawal due to planning a pregnancy in women with multiple sclerosis S. Hemat (Bochum, DE)
14:15 - 15:45		Scientific Session, Hall B Scientific Session 9: Neuromyelitis optica spectrum disease (NMOSD) Chairs K. Fujihara (Sendai, JP) B. Wildemann (Heidelberg, DE)
14:15 - 14:35	208	Update on pathogenesis M. Bradl (Vienna, AT)
14:35 - 14:55	209	Update on therapy T. Kümpfel (Munich, DE)
		Platform presentations of related original papers
14:55 - 15:07	210	The Hungarian population-based prevalence and incidence study of neuromyelitis optica spectrum disorder V. Papp (Aarhus, DK)
15:07 - 15:19	211	Predictors of outcome after a first attack of Neuromyelitis Optica M. Guillaume (Rouen, FR)
15:19 - 15:31	212	Retinal ganglion cell loss in neuromyelitis optica: a longitudinal study F.C. Oertel (Berlin, DE)
15:31 - 15:43	213	Serum glial fibrillary acidic protein (GFAP) and neurofilament light chain (NfL) in neuromyelitis optica spectrum disorders M. Watanabe (Fukuoka, JP)

Scientific Programme

14:15 - 15:45		Scientific Session, Hall C Scientific Session 10: Hunting for new targets to fight neurodegeneration Chairs C. Lubetzki (Paris, FR) M. Simons (Munich, DE)
14:15 - 14:35	214	Targeting the neuron M. Kerschensteiner (Munich, DE)
14:35 - 14:55	215	Targeting glia as a strategy to prevent neurodegeneration in MS C. ffrench-Constant (Edinburgh, UK) Platform presentations of related original papers
14:55 - 15:07	216	Structural and functional alterations of pyramidal neurons in a model of cortical multiple sclerosis A.-M. Schumacher (München, DE)
15:07 - 15:19	217	Nimodipine reduces acute relapse and prevents demyelination in models of multiple sclerosis K. Smith (London, UK)
15:19 - 15:31	218	Microglial interaction with nodes of Ranvier: a role in repair? T. Roux (Paris, FR)
15:31 - 15:43	219	Selective reduction of AMPA receptors on mature oligodendrocytes prevents demyelination and axonal injury in experimental autoimmune encephalomyelitis K. Evonuk (Cleveland, US)
14:15 - 15:45		Educational Session, Hall D Educational Session 20 (MAGNIMS): MRI and the diagnosis of multiple sclerosis Level: Basic Chairs F. Barkhof (London, UK) M. Filippi (Milan, IT)
14:15 - 14:45	220	MRI and the diagnosis of MS: from MAGNIMS 2016 to the 2017 revision of the McDonald criteria M. Filippi (Milan, IT)
14:45 - 15:15	221	Application of MRI diagnostic criteria in clinical practice M. Tintoré (Barcelona, ES)
15:15 - 15:45	222	MRI and multiple sclerosis misdiagnosis and differential diagnosis F. Barkhof (London, UK)

Scientific Programme

14:15 - 15:45

Educational Session, Hall E

Educational Session 21 (RIMS): Symptomatic treatment of MS: how to manage fatigue and gait dysfunction?

Level: Basic

Chairs

J. Kesselring (Valens, CH)
V. de Groot (Amsterdam, NL)

14:15 - 14:45

223

Overview

J. Kesselring (Valens, CH)

14:45 - 15:15

224

Exercise for gait therapy

P. Feys (Hasselt, BE)

15:15 - 15:45

225

Pharmacological and non-pharmacological treatment of fatigue

V. de Groot (Amsterdam, NL)

14:15 - 15:15

Meet the Expert, Meeting Room M4

Meet the Expert 3: Treatment

Chairs

E. Kubala Havrdová (Prague, CZ)
P.S. Sørensen (Copenhagen, DK)

16:15 - 17:15

Free Communications, Hall A

Free Communications 4: Treatment

Chairs

H. Weiner (Boston, US)
L. Airas (Turku, FI)

16:15 - 16:27

226

Comparative efficacy of teriflunomide versus dimethyl-fumarate on clinical and MRI outcomes: a two years French multicenter observational study

D. Laplaud (Nantes, FR)

16:27 - 16:39

227

Comparative effectiveness of teriflunomide and dimethyl fumarate in relapsing remitting multiple sclerosis. A Danish nationwide cohort study

M. Buron (Copenhagen, DK)

16:39 - 16:51

228

Comparative effectiveness of dimethylfumarate and fingolimod in an Italian monocentric cohort of relapsing remitting multiple sclerosis patients

L. Moiola (Milan, IT)

Scientific Programme

16:51 - 17:03	229	Final results of a placebo controlled, Phase 2 multicenter study of ublituximab (UTX), a novel glycoengineered anti-CD20 monoclonal antibody (mAb), in patients with relapsing forms of multiple sclerosis (RMS) E. Fox (Round Rock, US)
17:03 - 17:15	230	The use of autologous haematopoietic stem cell transplantation as a first line disease modifying therapy in patients with 'aggressive' multiple sclerosis J. Das (Sheffield, UK)
16:15 - 17:15		Free Communications, Hall B Free Communications 5: Imaging Chairs H. Tumani (Ulm, DE) N. Totolyan (St. Petersburg, RU)
16:15 - 16:27	231	Leptomeningeal enhancement in the brain on 7T MRI scans is common and is associated with cortical lesions in relapsing-remitting multiple sclerosis J. Zurawski (Boston, US)
16:27 - 16:39	232	Quantification of spinal cord atrophy in MS: which software, which vertebral level, spinal cord or brain MRI? A multi-centric, longitudinal comparison of three different volumetric approaches C. Lukas (Bochum, DE)
16:39 - 16:51	233	Advocacy for surrogacy: magnetisation transfer ratio indicates cortical multiple sclerosis lesion load in vivo N. Mistry (Birmingham, UK)
16:51 - 17:03	234	Detection of multiple sclerosis in brain MRIs using 3D convolutional networks K. Ritter (Berlin, DE)
17:03 - 17:15	235	Occurrence of non-linear brain volume loss trajectories in multiple sclerosis patients T. Uher (Prague, CZ)
16:15 - 17:15		Free Communications, Hall C Free Communications 6: Immunology/Neurobiology Chairs S. Meuth (Münster, DE) S. Khoury (Beirut, LB)

Scientific Programme

16:15 - 16:27	236	Deep immune-profiling of monozygotic twins discordant for multiple sclerosis indicates that genetic identity overrides disease-specific immune features L.A. Gerdes (Munich, DE)
16:27 - 16:39	237	High-dimensional profiling of single memory CD8+T cells reveals a specific pattern in multiple sclerosis patients E. Dugast (Nantes, FR)
16:39 - 16:51	238	Increased acute axonal injury and elevated oligodendroglial numbers in spinal normal-appearing white matter in MS as compared to neuromyelitis optica C. Wegner (Göttingen, DE)
16:51 - 17:03	239	Substantial 'subependymal-in' gradient of thalamic damage in progressive multiple sclerosis R. Magliozzi (Verona, IT)
17:03 - 17:15	240	T-bet-expressing B cells as key drivers of multiple sclerosis: from peripheral induction to local recruitment M.M. van Luijn (Rotterdam, NL)
16:15 - 17:00		Hot Topic, Hall D Hot Topic 10: Access to and restrictions in MS therapy across countries Chairs P.S. Sørensen (Copenhagen, DK) G. Comi (Milan, IT)
16:15 - 16:30	241	Clinician's view (Europe) E. Kubala Havrdová (Prague, CZ)
16:30 - 16:45	242	Follow-on products for treatment of multiple sclerosis in Latin America: an update J. Correale (Buenos Aires, AR)
16:45 - 17:00	243	MS society's view M. Mitchell (London, UK)
16:15 - 17:15		Educational Session, Hall E Case-based Educational Session 22: MOG-Ab phenotype Chairs M. Weber (Göttingen, DE) T. Derfuss (Basel, CH)
16:15 - 16:45	244	Case 1: The features of anti-MOG antibody-associated CNS demyelination: NMOSD, MS or a novel disease entity? M. Weber (Göttingen, DE)

Scientific Programme

16:45 - 17:15 **245** **Two cases of anti-MOG associated CNS demyelinating disease**
T. Derfuss (Basel, CH)

16:15 - 17:15 Meet the Expert, Meeting Room M4
Meet the Expert 4: Pregnancy
Chairs
S. Vukusic (Lyon, FR)
M.P. Amato (Florence, IT)

17:15 - 19:15 Poster Sessions, Poster exhibition
Poster Session 2

- P650** **STAR MS: Single Test to ARrive at MS diagnosis; a prospective, investigator blinded pilot study assessing the accuracy of the 'Central Vein Sign' using a single 3T MRI scan in diagnosing MS in cases of diagnostic uncertainty (NCT02485223)**
M. Clarke (Nottingham, UK)
- P651** **Applicability of neuromyelitis optica spectrum disease clinical trial attack criteria in a clinical routine setting - a trial design**
M. D'Souza (Basel, CH)
- P652** **Sensitivity and specificity of serum myelin oligodendrocyte glycoprotein-IgG assay for the diagnosis of demyelinating diseases of the central nervous system**
R. Orlandi (Verona, IT)
- P653** **What are the implications of retrospectively applying the 2017 McDonald MS diagnostic criteria to patients with CIS?**
G. Giovannoni (London, UK)
- P654** **Brain and spinal cord lesion criteria distinguishes AQP4-positive neuromyelitis optica and MOG-positive disease from multiple sclerosis**
M. Farez (Buenos Aires, AR)
- P655** **No better explanation: are we excluding the mimics when diagnosing multiple sclerosis?**
A. Lockhart (Dublin, IE)
- P656** **Misdiagnosis of multiple sclerosis: prevalence and characteristics of misdiagnosed patients referred to two academic MS centers**
M. Kaisey (Los Angeles, US)
- P657** **Magnetic resonance imaging features in neuromyelitis optica spectrum disorder according aquaporin-4 serostatus in a Colombian cohort**
L.M. Giraldo (Medellín, CO)

Scientific Programme

- P658** **Diagnosis of multiple sclerosis: comparison of the 2010 McDonald criteria, MAGNIMS 2016 and the new 2017 McDonald criteria**
J. Diaz (Leganes, ES)
- P659** **MOG-antibody associated isolated myelitis: a distinct disease entity?**
J. Loos (Mainz, DE)
- P660** **The spectrum of anti-MOG associated acquired demyelinating syndromes**
C.L. de Mol (Rotterdam, NL)
- P661** **The influence of T cells in NMO disease pathogenesis**
M. Lindner (Münster, DE)
- P662** **MOG-autoimmunity in Japan and Germany - a retrospective study in MOG-IgG-positive CNS inflammatory disorders**
M. Mori (Chiba, JP)
- P663** **Clinical presentation of Anti MOG seropositivity in Israel**
A. Vaknin-Dembinsky (Jerusalem, IL)
- P664** **Incidence of myelin oligodendrocyte glycoprotein- and aquaporin-4 antibodies in a northern German cohort of myelitis patients**
K.H. Stürner (Kiel, DE)
- P665** **Unique clinical features of late-onset neuromyelitis optica spectrum disorders in a Japanese cohort**
E. Saji (Niigata, JP)
- P666** **Neurofilament light chain is a useful biomarker in paediatric multiple sclerosis**
J. Gärtner (Göttingen, DE)
- P667** **Serum neurofilament light chain in pediatric acquired demyelinating syndromes**
A. Bruijstens (Rotterdam, NL)
- P668** **Prospective clinical and MRI characterization of children with serum anti-MOG antibodies meeting the multiple sclerosis diagnostic criteria**
G. Fadda (Philadelphia, US)
- P669** **Diffusion tensor imaging in pediatric onset multiple sclerosis: differential links to information processing speed and memory functioning**
M. Shaw (New York, US)
- P670** **Memory and identification of emotional expression in pediatric-onset multiple sclerosis**
T.L. Fabri (Toronto, CA)
- P671** **Real world validation of the 2017 McDonald criteria for pediatric multiple sclerosis**
C.L. de Mol (Rotterdam, NL)
- P672** **Late clinical activity in long-standing non-active multiple sclerosis patients**
L. Corti (montpellier, FR)

Scientific Programme

- P673 The role of advanced care plans in preventing hospital deaths in multiple sclerosis**
E. Nicholas (London, UK)
- P674 Topological data analysis to identify subgroups of multiple sclerosis patients with faster disease progression**
R. Ramanujam (Stockholm, SE)
- P675 Outcomes of African-Americans compared to Caucasian-Americans in the CombiRx study**
O. Ayeni (New York, US)
- P676 The World Health Organization Disability Assessment Scale in the measurement of activity and participation in multiple sclerosis**
E. James (London, UK)
- P677 Assessing the cumulative effects of disease-modifying therapies on the current risk of irreversible disability in patients with relapsing-remitting multiple sclerosis**
F. Rollot (Lyon, FR)
- P678 Surveying the gut microbiota in multiple sclerosis: a systematic review (2008-2018)**
A. Mirza (Vancouver, CA)
- P679 A systematic assessment of prevalence, incidence and regional distribution of multiple sclerosis in Bavaria from 2006 to 2015**
T. Daltrozzo (Munich, DE)
- P680 The brain-derived neurotrophic factor Val66Met-polymorphism is associated with higher disability levels in multiple sclerosis patients**
L. Razzolini (Florence, IT)
- P681 MRI evidence suggests that late onset MS is due to true late onset rather than late presentation**
S. Quraishi (Nottingham, UK)
- P682 Social deprivation increases risk of disability in relapsing-remitting and secondary progressive MS**
F. Calocer (Caen, FR)
- P683 Epidemiology of NMOSD in Central Serbia**
J. Drulovic (Belgrade, RS)
- P684 Causes and outcomes of hospital admissions in neuromyelitis optica and multiple sclerosis patients - a nationally representative study**
A. Yeshokumar (New York, US)
- P685 Higher serum uric acid levels associated with smoking cessation but not disability or disease severity in patient with multiple sclerosis**
M. Alrouji (Nottingham, UK)
- P686 Demographics, lifestyle risk factors, and health outcomes of two large international samples of people with multiple sclerosis: HOLISM Longitudinal and Validation cohorts**
S. Simpson, Jr. (Carlton, AU)

Scientific Programme

- P687 Multiple sclerosis coverage in the written media of a low prevalence country**
S. Cárdenas-Robledo (Bogotá, CO)
- P688 Anti CD20 therapies and pregnancy in neuroimmunological disorders - a case series from Germany**
T. Kümpfel (Munich, DE)
- P689 Disease-modifying therapies, fertility and post-partum multiple sclerosis course: interim data from PREG-MS cohort**
M.C. Manieri (Boston, US)
- P690 Hypogonadism in men with multiple sclerosis: prevalence and clinical associations**
R. Farber (New York., US)
- P691 Communicating cognitive problems in MS: the effect of indirect language and stigma consciousness on subjective and objective memory performance**
H.E. Hulst (Amsterdam, NL)
- P692 Sexual dysfunction in multiple sclerosis: a systematic review and meta-analysis of prevalence**
J. Oh (Toronto, CA)
- P693 Cognitive self-monitoring persistence and reliability using the web-based battery, MSReactor**
D. Merlo (Melbourne, AU)
- P694 Sexual dysfunction in women with clinically isolated syndrome**
H. Shehata (Cairo, EG)
- P695 Objective and subjective assessment of physical activity in multiple sclerosis and their relation to fatigue**
F. Söke (ANKARA, TR)
- P696 Clinical and urodynamic risk factors for recurrent urinary tract infections in multiple sclerosis**
P. Montero-Escribano (Madrid, ES)
- P697 Frailty assessment in ageing patients with multiple sclerosis**
X. Ayrignac (Montreal, CA)
- P698 Validation of the Fitbit Flex2 accelerometer to measure step count in people with MS during 7 days of continuous remote monitoring in the home environment**
V.J. Block (San Francisco, US)
- P699 Electronic Neurostatus-EDSS increases quality of expanded disability status scale (EDSS) assessments: first experience from two phase 3 clinical trials with ofatumumab in relapsing multiple sclerosis using the Web Diary**
M. D'Souza (Basel, CH)

Scientific Programme

- P700** **Improving clinico-radiological correlation in multiple sclerosis with automated tract and topology annotations**
J. Richiardi (Lausanne, CH)
- P701** **Accuracy versus reproducibility: comprehensive assessment of four automated methods for multiple sclerosis lesion segmentation**
M.J. Fartaria (Lausanne, CH)
- P702** **Acceptability in clinical practice of MSCopilot, a smartphone application for the digital self-assessment of patients living with MS**
E. Maillart (Paris, FR)
- P703** **Motion perception is associated with functional and structural visual pathway damage in multiple sclerosis and neuromyelitis optica spectrum disorders**
N. Ayadi (Berlin, DE)
- P704** **Social network structure is a novel protective factor related to cognitive reserve in MS**
S. Levin (New York, US)
- P705** **Korean validation of the 12-item multiple sclerosis walking scale and application to neuromyelitis optica spectrum disorder**
W. Kim (Seoul, KR)
- P706** **Investigating the relation of cognition to cerebellar function in relapsing-remitting multiple sclerosis using the Motor Planning Index: a longitudinal study**
D. Langdon (London, UK)
- P707** **Two-minute walk is more sensitive than timed 25-foot walk to gait changes in early multiple sclerosis**
D. Kurz (New York, US)
- P708** **Central sleep apnea in people with multiple sclerosis who report fatigue: polysomnography study in a large cohort**
M. Gudesblatt (Patchogue, US)
- P709** **Brain atrophy is detectable in an early multiple sclerosis cohort by using transcranial duplex**
J.M. García-Domínguez (Madrid, ES)
- P710** **Comparison of the Audio Recorded Cognitive screen (ARCS) and Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS) battery in assessing Australian MS patients**
J. Lechner-Scott (New Lambton, AU)
- P711** **Clinical outcomes assessment in MS trials: on balance, the Berg Balance Scale is a precarious measure**
J. Hobart (Plymouth, UK)
- P712** **Self-monitoring of mobility, signal processing speed, physical activity and sleep by persons with multiple sclerosis**
P. van Oirschot (Nijmegen, NL)

Scientific Programme

- P713 Screening for cognitive impairment in people with multiple sclerosis: is a unidimensional measure really sufficient to detect the cognitive elephant in the room?**
M. Gudesblatt (Patchogue, US)
- P714 Correlation of the brief international cognitive assessment of MS (BICAMS) and the multiple sclerosis cognitive - linguistic checklist (MSC-LC) with objective assessment and patient report measures of physical function and fatigue**
L. Kostich (Madison, US)
- P715 A mobile application for real-time assessment of fatigue and related symptoms in patients with multiple sclerosis**
M. Palotai (Boston, US)
- P716 Sick leave in early MS is associated with fatigue and relapse rate, not disability**
D. Doesburg (Amsterdam, NL)
- P717 Variation in employment status among people with MS in the United States, United Kingdom and Germany**
A. Salter (St. Louis, US)
- P718 Connectivity patterns within the visual network following damage to the optic nerve**
N. Levin (Jerusalem, IL)
- P719 Vision and vision-related measures in progressive multiple sclerosis**
N. Levin (Jerusalem, IL)
- P720 Fractal analysis of retinal vascular morphology in multiple sclerosis**
M. Cavallari (Boston, US)
- P721 Early age of onset predicts severity of visual impairment in patients with neuromyelitis optica**
G. Macaron (Cleveland, US)
- P722 Infrared pupillary asymmetry (IPA) for detection of a relative afferent pupillary defect (RAPD)**
N.S. Meneguetto (Rio de Janeiro, BR)
- P723 Quantitative assessment of fatigue severity by means of manual infrared pupillometry in multiple sclerosis**
S. Samadzadeh (Bamberg, DE)
- P724 Functional-structural assessment of the optic pathways in patients with multiple sclerosis and optic neuritis**
M. Falck Schmidt (Glostrup, DK)
- P725 An investigation into the relationship between patient perceived visual function and objective measures of disease impact in people with multiple sclerosis: macular volume, retinal nerve fiber layer density, and visual evoked potential latency**
J. Srinivasan (Patchogue, US)

Scientific Programme

- P726 Hepatitis E virus infections as a possible complication of immunomodulatory treatment in multiple sclerosis**
M. Diebold (Basel, CH)
- P727 Assessing the burden of vascular risk factors on brain atrophy in multiple sclerosis: a case- control MRI study**
L. Loreface (Cagliari, IT)
- P728 Cardiovascular disease (CVD) in patients diagnosed with multiple sclerosis (MS): a study in the UK Clinical Practice Research Database (CPRD)**
S. Jick (Boston, US)
- P729 Factors associated with comorbidity among persons with MS**
K.V. Turpin (Edmonton, CA)
- P730 Comorbidities significantly increase daily activity impairment and affect working status and work productivity in people with multiple sclerosis**
J. Chen (Hobart, AU)
- P731 Relapsing-remitting multiple sclerosis and subclinical atherosclerosis**
T. Omerzu (Maribor, SI)
- P732 The prevalence of comorbidities before and after the onset of multiple sclerosis compared to the general population**
I. van der Mei (Hobart, AU)
- P733 Care-seeking and disease modifying therapies use among multiple sclerosis patients with and without mental disorders: a population-based study**
A. Guilleux (Rennes, FR)
- P734 Analysis of neuronal morphology in the multiple sclerosis brain by diolistic labeling**
J. Dunham (Cleveland, US)
- P735 Thalamic lesion load does not relate to cortical lesion pathology: findings from a large cross-sectional multiple sclerosis cohort imaged at 7 Tesla**
A. Mehndiratta (Boston, US)
- P736 Multiple sclerosis brain T cells have a tissue resident memory-like phenotype and correlate positively with chronic active lesions**
J. Smolders (Sittard, NL)
- P737 Perivenous inflammatory demyelination with CD4-dominant T cell infiltration is prominent in myelin oligodendrocyte glycoprotein antibody-associated diseases**
Y. Takai (Sendai, JP)
- P738 Pathologic and MRI correlation in acute atypical inflammatory demyelinating lesions**
X. Ayrignac (Montreal, CA)
- P739 Immune cell trafficking to the gut shapes experimental autoimmune encephalomyelitis**
D. Duc (Lausanne, CH)

Scientific Programme

- P740** **Optic neuritis detected with visual evoked potentials in experimental autoimmune encephalomyelitis mice model**
S. Marena (Milano, IT)
- P741** **Cholesterol supports repair in mouse models of demyelination and remyelination**
G. Saher (Goettingen, DE)
- P742** **Environmental enrichment improves cognitive function and anxiety-like symptoms and decreases neuroinflammation in a focal cortical model of progressive multiple sclerosis**
B.A. Silva (Buenos Aires, AR)
- P743** **BMP signaling blockade as a therapeutic approach for MS: mechanistic studies**
H. Eixarch (Barcelona, ES)
- P744** **The roles of monocyte derived versus classical dendritic cells in the initiation of autoimmune demyelinating disease**
P. Duncker (Ann Arbor, US)
- P745** **Pathophysiological changes and neuropathic pain in experimental autoimmune encephalomyelitis (EAE)**
J. Bethea (Philadelphia, US)
- P746** **GM-CSF activates the CCR1 chemokine pathway to promote the development of chronic disability in EAE**
P. Duncker (Ann Arbor, US)
- P747** **Epigenetic mechanisms regulate T helper 17 and T regulatory cells during pregnancy in multiple sclerosis**
S. Rolla (Orbassano, IT)
- P748** **Multiple sclerosis-associated IL2RA gene variants affect DNA methylation**
H.B. Søndergaard (Copenhagen east, DK)
- P749** **Chr8p23 region implicated in genetic basis for demyelination in multiple sclerosis patients**
I. Smets (Leuven, BE)
- P750** **Multiple sclerosis susceptibility variants influence natural killer cell function and phenotype**
L. Ferrè (Milan, IT)
- P751** **MS risk loci are not associated with adult-onset post-infectious acquired demyelinating syndromes (ADS)**
F. Martinelli Boneschi (San Donato Milanese, IT)
- P752** **ANXA2 circular DNAs are differentially expressed in multiple sclerosis patients**
L. Iparraguirre (Donostia, ES)
- P753** **Somatic mutations in CD8+ cells are common in multiple sclerosis patients and controls**
P. Tienari (Helsinki, FI)

Scientific Programme

- P754 Epstein-Barr virus-specific CD8+ T cells infiltrate the multiple sclerosis brain**
B. Serafini (Rome, IT)
- P755 Cerebrospinal fluid mitochondrial DNA elicits innate immune response in neuromyelitis optica spectrum disorder**
K. Yamashita (Osaka, JP)
- P756 Antigen-independent direct interactions between Th17 cells and oligodendrocytes in MS and EAE**
C. Larochelle (Montréal, CA)
- P757 B cell differentiation is defective in multiple sclerosis patients**
J. Morille (Nantes, FR)
- P758 Neuropathological analysis of IL-9 and IL-9R in progressive multiple sclerosis: evidences of expression since early lesion stages**
V. Mazziotti (Verona, IT)
- P759 Neural Precursor Cells of the Central Nervous System inoculation triggers immune responses in naive mice**
N. Grigoriadis (Thessaloniki, GR)
- P760 Alteration of CD8+CD45RCint/neg regulatory T cells functions in multiple sclerosis and correlates with disease severity**
N. Benallegue (Nantes, FR)
- P761 IL-10 producing non-pathogenic Th17 cells and their role in EAE**
J. Wolbert (Münster, DE)
- P762 S1P1 receptor antagonists Fingolimod and SEW2871 affect human group 1 and 3 innate lymphoid cell biology**
M.F. Yetkin (Kayseri, TR)
- P763 Distinct effects of inflammatory mediators linked to inflammatory multiple sclerosis on neuronal damage and regeneration in human neuronal stem cell-derived neuron cultures**
L. Meyer-Arndt (Berlin, DE)
- P764 Multiple sclerosis associated cytotoxic CD4+ T cells escape regulatory T cell mediated suppression**
B. Broux (Diepenbeek, BE)
- P765 Circulating dendritic cells of patients with multiple sclerosis show inflammation-dependent gene expression changes following transmigration across an in vitro blood-brain barrier**
N. Cools (Wilrijk, BE)
- P766 Analysis of CD4+ cells reveal increased exposure of multiple sclerosis patients to Clostridium perfringens epsilon toxin**
J. Linden (New York, US)
- P767 High levels of Epstein Barr virus capsid antigen (EBV VCA) IgG and nuclear antigen (EBNA-1) IgG are associated with multiple sclerosis disease activity**
C. Constantinescu (Nottingham, UK)

Scientific Programme

- P768 Multiple sclerosis: Epstein-Barr virus variants' role to understand the etiology**
E. Morena (Roma, IT)
- P769 Long term propionic acid supplementation leads to modulation of T effector cell balance/function and a decrease in annual relapse rate**
A. Duscha (Bochum, DE)
- P770 Alterations in gut microbiome are associated with the onset of multiple sclerosis: an Italian pivotal study**
S. Rolla (Orbassano, IT)
- P771 Lactibiane iki treatment increases regulatory T cells and improves experimental autoimmune encephalomyelitis outcome**
L. Calvo-Barreiro (Barcelona, ES)
- P772 Multiple sclerosis and chromosomally integrated HHV6. Clinical reports of five patients**
M.T. Ferrò (Italy, IT)
- P773 Oral administration of succinate exacerbates an animal model of multiple sclerosis**
M. Shimizu (Osaka, JP)
- P774 Single cell RNA sequencing of human adult brain derived oligodendrocytes ex-vivo and in-vitro**
K. Perlman (Montreal, CA)
- P775 CNS-infiltrating leukocytes alter the astrocytic phenotype in Th17-mediated EAE**
A. Monteagudo (Ann Arbor, US)
- P776 Calcium clearance of retinal ganglion cells is impaired during autoimmune optic neuritis**
C.I. Haubner (Heidelberg, DE)
- P777 MS brain and spinal cord transmits pathology to humanized transgenic mice**
S. Tsutsui (Calgary, CA)
- P778 Exposure to multiple sclerosis patient cerebrospinal fluid alters glutamate transporter expression in primary human astrocytes**
S.N. Blandford (St. John's, CA)
- P779 Chitinase 3-like 1 as potential therapeutic target in multiple sclerosis**
C. Matute-Blanch (Barcelona, ES)
- P780 Clostridium perfringens epsilon toxin: a putative MS microbiological trigger that causes focal demyelination with axonal preservation**
P. Winokur (New York, US)
- P781 Interaction of Tcell subpopulations and their key cytokines with neurons in a human cell culture model**
S. Hirschberg (Bochum, DE)

Scientific Programme

- P782** **Modelling MS progression in the afferent visual system: retinal, optic radiation and visual cortex changes after clinically isolated optic neuritis**
J. Kuchling (Berlin, DE)
- P783** **Multiple sclerosis susceptibility variants modulate lymphocytes effect on myelin repair**
P. Buissonnière (Paris, FR)
- P784** **A K2P-channel affects oligodendroglial differentiation but not remyelination**
P. Hünneke (Münster, DE)
- P785** **miR-223 is an MS-relevant regulator of myeloid cell polarization and CNS remyelination**
D. Galloway (St. John's, CA)
- P786** **Predicting conversion to secondary progressive MS: the role of MRI measures**
K.A. Meijer (Amsterdam, NL)
- P787** **Spinal cord atrophy patterns in aquaporin-4 antibody and myelin oligodendrocyte glycoprotein antibody seropositive NMOSD**
C. Chien (Berlin, DE)
- P788** **Clinical and histological validation of rapid magnetic resonance myelin imaging in multiple sclerosis**
R. Ouellette (Stockholm, SE)
- P789** **Mapping the imaging correlates of hand motor performance in multiple sclerosis: a combined structural and functional MRI study**
C. Cordani (Milan, IT)
- P790** **Neurite Orientation Dispersion and Density Imaging (NODDI) and ²³Na MRI in clinically isolated syndrome**
S. Collorone (London, UK)
- P791** **Detection of cortical demyelination using T1w/T2w ratio in post-mortem brains**
K. Nakamura (Cleveland, US)
- P792** **Characterization of white matter lesions in early multiple sclerosis by combined magnitude and phase contrast at 7 Tesla and multi-shell diffusion imaging**
C.-A. Treaba (Boston, US)
- P793** **The relationship between functional connectivity in motor areas and gamma-aminobutyric acid (GABA) levels in progressive MS: a combined 1H-MRS - resting state fMRI study**
A. Droby (New York, US)
- P794** **Cerebellar and spinal cord volume reduction is prominent even in patients with mild disability in multiple sclerosis**
M. Vaneckova (Prague, CZ)

Scientific Programme

- P795 Accelerating cortical atrophy as an explanation for cognitive decline in progressive MS**
A.J. Eijlers (Amsterdam, NL)
- P796 Disappearing lesions after a clinically isolated syndrome**
R. Cortese (London, UK)
- P797 Influence of T2-hyperintense lesions on cervical spinal cord atrophy and disability in patients with multiple sclerosis**
E. Pravata' (Lugano, CH)
- P798 Dynamics of pseudo-atrophy in relapsing-remitting MS patients treated with interferon beta-1a as assessed by monthly brain MRI**
M. Battaglini (Siena, IT)
- P799 Impact of repetitive transcranial magnetic stimulation on fractional anisotropy of left prefrontal cortex in relapsing remitting multiple sclerosis patients with depression**
N.M. Shalaby (Cairo, EG)
- P800 Test-retest reliability of 3D-EPI pulsed arterial spin labelling at 7T in multiple sclerosis**
Y. Falah (Nottingham, UK)
- P801 Leptomeningeal contrast enhancement evolution in multiple sclerosis**
G. Makshakov (Saint-Petersburg, RU)
- P802 Functional neuroplasticity in response to cerebello-thalamic injury underpins the clinical presentation of tremor in multiple sclerosis**
F.M.C. Boonstra (Melbourne, AU)
- P803 Comparison of the diagnostic accuracy between the 2010 and 2017 McDonald MRI criteria for dissemination in space in a cohort of Spanish patients with a clinically isolated syndrome**
R. Lamas Pérez (Sevilla, ES)
- P804 The central vein sign and paramagnetic rim sign in white matter lesions of radiologically isolated syndrome: perivenular and chronic active demyelination in asymptomatic individuals?**
J. Oh (Toronto, CA)
- P805 Changes in select resting-state brain functional networks and preservation of social cognitive performances in multiple sclerosis**
I. Koubiyr (Bordeaux, FR)
- P806 Confirmation of specific binding of the 18 kDa translocator protein (TSPO) radioligand [18F]GE-180: a blocking study using XDB173 in multiple sclerosis**
S. Sridharan (London, UK)
- P807 Peak width of skeletonized mean diffusivity (PSMD), a promising imaging marker for white matter diseases: a comparative study in MS and CADASIL**
C. Vinciguerra (Siena, IT)

Scientific Programme

- P808 Neural network measures of a motor-alertness tasks and correlates with fatigue in MS**
C. van Antwerpen (Bristol, UK)
- P809 Inhomogeneous magnetization transfer (ihMT) as a new sensitive marker of the microstructural spinal cord changes in multiple sclerosis**
S. Demortiere (Marseille, FR)
- P810 Fluorine MRI to study neuroinflammation and drugs in vivo**
S. Waiczies (Berlin, DE)
- P811 Lesion-seeded MRI diffusion streamline analysis detects pathology in MS lesion edges**
O. Oladosu (Calgary, CA)
- P812 Open-label, single-blinded, observational, prospective, 24-month, longitudinal, controlled study to assess the efficacy of fingolimod on development of thalamus pathology and cognitive impairment in patients with relapsing forms of multiple sclerosis**
R. Zivadinov (Buffalo, US)
- P813 Microglia activation in cerebellum increases with proximity to the IV ventricle in progressive MS**
V. Barletta (Boston, US)
- P814 Predicting grey matter atrophy patterns in multiple sclerosis using T2-hyperintense lesion maps and connectome data**
M. Bussas (München, DE)
- P815 The “central vein sign” in patients with diagnostic “red flags” for multiple sclerosis: a prospective multicenter 3T study**
P. Maggi (Lausanne, CH)
- P816 Neural-vascular uncoupling explains cognitive slowing in multiple sclerosis**
D.K. Sivakolundu (Dallas, US)
- P817 Impact of T1-weighted/T2-weighted ratio scaling approaches on its association with diffusion-derived metrics**
D. Pareto (Barcelona, ES)
- P818 Patterns of association between neuropsychological task performance and structural connectomes in mildly disabled RRMS**
A.C. Has (Hamburg, DE)
- P819 Estimating full spinal cord grey matter atrophy in MS and healthy controls from spinal cord hemisections**
J. Sastre-Garriga (Barcelona, ES)
- P820 Diffusivity data suggests progressive lesion-independent demyelination in NAWM of MS patients: a 5 year study**
C. Wang (Sydney, AU)

Scientific Programme

- P821 A semi-automated method to evaluate perivenular perivascular spaces at 7 Tesla in relapsing remitting multiple sclerosis patients and healthy controls**
I.C. George (New York, US)
- P822 Motor performance decline in multiple sclerosis is mediated by neural-vascular coupling**
K. West (Dallas, US)
- P823 White matter network properties predict atrophy in multiple sclerosis**
A. Radetz (Mainz, DE)
- P824 Characterizing MS lesion pathology using directional metrics of auto-correlation in MRI**
Y. Zhang (Calgary, CA)
- P825 Cerebellum and cognition in progressive MS patients: a resting state fMRI study**
M. Petracca (New York City, US)
- P826 Signal intensity in dentate nucleus and globus pallidus on T1-weighted unenhanced magnetic resonance images after repeated administrations of macrocyclic GBCAs: does the type of agent matter?**
A. Sartori (Trieste, IT)
- P827 Grey matter connectivity changes in patients with multiple sclerosis after a neurorehabilitation program**
D. Pareto (Barcelona, ES)
- P828 q-Space Myelin Map imaging for longitudinal analysis of remyelination in multiple sclerosis patients treated with natalizumab**
K. Kufukihara (Tokyo, JP)
- P829 Evaluation of NODDI indexes in white and gray matter for the characterization of MS clinical features: pathological phenotypes, EDSS and disease duration**
A. Tamanti (Verona, IT)
- P830 Optical coherence tomography measures and their relationship with grey matter networks in multiple sclerosis patients**
À. Vidal-Jordana (Barcelona, ES)
- P831 Discriminative power of intra-retinal layers in early multiple sclerosis using 3D OCT imaging**
C. Seitz (Mainz, DE)
- P832 Retinal nerve fibre layer thickness in the temporal quadrant predicts clinical disability and cervical cord cross sectional area in secondary progressive multiple sclerosis**
F. De Angelis (London, UK)
- P833 Automatic quality analysis of retinal optical coherence tomography**
J. Kauer (Berlin, DE)

Scientific Programme

- P834 Quantitative OCT and MRI in MS as surrogates for clinical activity based on annual follow-ups**
V. Vitkova (Berlin, DE)
- P835 Retinal ganglion cell/inner plexiform layer thickness is decreased in radiologically isolated syndrome subjects with spinal cord lesions**
A. Filippatou (Baltimore, US)
- P836 Neurodegeneration in multiple sclerosis and neuromyelitis optica: an optical coherence tomography study**
M. Pisa (Milan, IT)
- P837 Onset of optic neuritis precedes motor disability in a preclinical model of multiple sclerosis**
S.-C. Huang (Milano, IT)
- P838 Hub connectivity is related to cognitive impairment in multiple sclerosis: a magnetoencephalography study**
I.M. Nauta (Amsterdam, NL)
- P839 Cognitive functioning as a determinant of employment outcomes in patients with multiple sclerosis; a one-year longitudinal study**
D.A.M. van Gorp (Utrecht, NL)
- P840 Mathematical modelling characterises fatigability as a distinct phenomenon in patients with multiple sclerosis**
S. Tommasin (Rome, IT)
- P841 Replication of cognitive relapse phenomenon in multiple sclerosis in association with gadolinium enhancing lesions**
R.H. Benedict (Buffalo, US)
- P842 Predictors of cognitive impairment in untreated multiple sclerosis: preliminary findings**
E. Virgilio (Novara, IT)
- P843 Disease modifying drug treatment and work functioning in patients with multiple sclerosis**
K. van der Hiele (Rotterdam, NL)
- P844 A game-changer for treating cognitive impairment in MS? Feasibility and preliminary efficacy of an in-home, unsupervised videogame-based digital therapeutic**
R. Bove (San Francisco, US)
- P845 Face-to-face and telematics cognitive stimulation in multiple sclerosis patients**
M. Cerezo-García (Madrid, ES)
- P846 Developing a biomarker of working memory functioning using whole-brain functional connectivity**
R. Prakash (Columbus, US)
- P847 Evolution of vestibular system involvement in patients with clinically isolated syndrome over two-year follow-up**
B. Barun (Zagreb, HR)

Scientific Programme

- P848 Cognitive reserve is associated with better employment status in both adult and pediatric-onset multiple sclerosis**
L. Pasto' (Florence, IT)
- P849 Serum neurofilament light chain as a predictive marker in patients after first demyelinating event suggestive of multiple sclerosis**
B. Benova (Prague, CZ)
- P850 Measuring plasma glial fibrillary acidic protein in multiple sclerosis - an easily accessible marker of astrogliosis?**
C. Barro (Basel, CH)
- P851 Chronic active multiple sclerosis lesions are destructive and associated with motor and cognitive disability in vivo**
M. Absinta (Bethesda, US)
- P852 Dimethyl fumarate decreases neurofilament light chain levels in CSF and blood**
T. Sejbaek (Odense, DK)
- P853 Neurofilament light chain levels are a reliable and sensitive biomarker that can detect subclinical neuroinflammation in monozygotic twins discordant for multiple sclerosis**
L.A. Gerdes (Munich, DE)
- P854 Patients with early MS and an altered intestinal barrier have a distinct immunologic phenotype**
C. Camara (Calgary, CA)
- P855 Evaluation of soluble IFN β receptor (sIFNAR2) as IFN β response biomarker in multiple sclerosis patients**
B. Oliver-Martos (Málaga, ES)
- P856 ncRNA expression profile in plasma neural derived exosomes from multiple sclerosis patients**
E. Oldoni (Leuven, BE)
- P857 Metabolome biomarkers for conversion to multiple sclerosis in patients with clinically isolated syndrome**
C. Gasperi (Munich, DE)
- P858 Altered cerebrospinal fluid levels of microfibrillar-associated protein 4 in acute optic neuritis**
M.N. Olesen (Odense, DK)
- P859 Intrathecal K free light chain synthesis in multiple sclerosis at clinical onset associates with local IgG production and improves the diagnostic value of cerebrospinal fluid examination**
S. Mianze (Padova, IT)
- P860 Utility of cerebrospinal fluid free light kappa and lambda chain determination in oligoclonal band-negative patients with suspected multiple sclerosis**
D. Ferraro (Modena, IT)

Scientific Programme

- P861** **Temporal changes of inflammation and endothelial dysfunction in multiple sclerosis related to the evolution of enhancing lesions on frequent MRI**
Z. Illes (Odense, DK)
- P862** **Transcriptomic effect of fingolimod on B cell differentiation and survival in multiple sclerosis patients and the relationship with NEDA response. Not everything is explained by lymphocyte retention**
I. Moreno Torres (Majadahonda, ES)
- P863** **Identification of a novel subgroup of relapsing-remitting multiple sclerosis patients with elevated peripheral blood antibody-secreting cells**
K.D. Disano (Lebanon, US)
- P864** **The Sys4MS project: personalizing health care in multiple sclerosis using systems medicine tools**
I. Zubizarreta (Barcelona, ES)
- P865** **Recovery of VEP latencies after initial optic neuritis: surrogate marker for 2-year clinical and brain atrophy outcome in subsequent multiple sclerosis**
L.-M. Teußler (Leipzig, DE)
- P866** **Magnetic resonance spectroscopy profiling of cerebrospinal fluid in patients with multiple sclerosis, clinically isolated syndrome and other forms of demyelination**
E. Kantorova (Martin, SK)
- P867** **The neutrophil-to-lymphocyte and monocyte-to-lymphocyte ratios are independently associated with neurological disability and brain atrophy in multiple sclerosis**
C. Hemond (Boston, US)
- P868** **Treatment optimization: are U.S. neurologists using high-efficacy therapies for newly diagnosed RRMS?**
R. Naismith (Saint Louis, US)
- P869** **Ozanimod reduces rates of annualised relapse requiring steroids or hospitalisation versus interferon β -1a: pooled results from two multicentre, randomised, double-blind, phase 3 studies in relapsing multiple sclerosis (SUNBEAM and RADIANCE)**
G. Comi (Milan, IT)
- P870** **Evaluating the effect of teriflunomide on whole brain atrophy in the phase 3 TOPIC study**
R. Zivadinov (Buffalo, US)
- P871** **MOSPD2: a novel therapeutic target for the treatment of CNS inflammation**
I. Mendel (Modi'in, IL)
- P872** **Two-year follow-up of regulatory B cells following alemtuzumab in multiple sclerosis patients**
Y. Kim (Goyang-si, KR)

Scientific Programme

- P873 Functional characterization of reappearing B cells after anti-CD20 treatment in two animal models of multiple sclerosis**
D. Häusler (Goettingen, DE)
- P874 Siponimod increases brain-derived neurotrophic factor (BDNF) levels in the brain of EAE mice**
M. Bigaud (Basel, CH)
- P875 Updated safety analysis of cladribine tablets in the treatment of patients with multiple sclerosis**
S. Cook (Newark, US)
- P876 Equipoise for randomizing RRMS patients to escalation vs highly effective treatment in a large clinical cohort**
M. McGinley (Cleveland, US)
- P877 Recurring symptoms at the end of the natalizumab cycle: can we explain the wearing-off effect?**
Z. van Kempen (Amsterdam, NL)
- P878 Immunomodulation associated with clinical and MRI worsening in patients with progressive MS treated with MD1003 (high dose pharmaceutical grade biotin)**
B. Pignolet (Toulouse, FR)
- P879 Dimethyl fumarate reduces the frequency of antigen-primed T cells and the potential of CNS transmigration in patients with multiple sclerosis**
R. Holm Hansen (København Ø, DK)
- P880 No correlation between lymphocyte pharmacodynamics and autoimmune adverse events following alemtuzumab treatment in patients with relapsing-remitting multiple sclerosis**
H. Wiendl (Münster, DE)
- P881 Long-term effectiveness of natalizumab in multiple sclerosis: a 10-year nationwide prospective cohort study**
A. Manouchehrinia (Stockholm, SE)
- P882 Design and rationale of the determining the effectiveness of early intensive versus escalation approaches for the treatment of relapsing-remitting multiple sclerosis (DELIVER-MS) trial**
D. Ontaneda (Cleveland, US)
- P883 The Danish experience of teriflunomide treatment in relapsing remitting multiple sclerosis**
M. Magyari (Copenhagen, DK)
- P884 Late-prophylactic or therapeutic treatment with immunomodulators of the MP1030 class ameliorate multiple sclerosis in mice**
S. Schumann (Berlin, DE)
- P885 Assessing teriflunomide treatment satisfaction in clinical trial and real-world settings: TENERE and TAURUS-MS I**
P. Vermersch (Lille, FR)

Scientific Programme

- P886** **The bile acid receptor Farnesoid X receptor controls central nervous system autoimmunity via anti-inflammatory monocyte polarization inducing a distinct metabolic profile**
M. Herold (Muenster, DE)
- P887** **Efficacy and safety of rituximab as first-line therapy in NMOSD compared with other first-line immunosuppressive treatments**
H. Zéphir (Lille, FR)
- P888** **Dimethyl fumarate treatment alters T cell metabolism in multiple sclerosis**
M. Liebmann (Münster, DE)
- P889** **Pregnancy desire under monoclonal and oral treatments: a descriptive analysis of treatment strategies**
À. Vidal-Jordana (Barcelona, ES)
- P890** **Multicenter open-label non-interventional study assessing the alteration of activity in ambulatory patients with relapsing forms of MS (RMS) under treatment with COPAXONE® 40 mg tiw - results of an interim analysis of the NIS COPTIVITY**
T. Ziemssen (Dresden, DE)
- P891** **Natalizumab is associated with no evidence of disease activity and improved cognitive function and health-related quality of life in anti-JC virus seronegative patients with early relapsing-remitting multiple sclerosis: a 3-year analysis of STRIVE**
R.J. Fox (Cleveland, US)
- P892** **Lymphopenia rates in CLARITY/CLARITY extension are unrelated to disease activity at baseline**
S. Cook (Newark, US)
- P893** **Blood transcriptome analysis of alemtuzumab-treated MS patients from the CARE-MS I and II studies**
M. Zhang (Cambridge, US)
- P894** **Durability of NEDA-3 status in patients with relapsing multiple sclerosis receiving cladribine tablets: CLARITY extension**
G. Giovannoni (London, UK)
- P895** **Two-year assessment of No Evidence of Disease Activity (NEDA-3) and disability regression in patients with aggressive multiple sclerosis treated with alemtuzumab**
L. Prosperini (Rome, IT)
- P896** **Italian prospective multicenter observational study on real-life experience with alemtuzumab in naive patients with aggressive relapsing remitting multiple sclerosis: initial impressions**
L. Moiola (Milan, IT)
- P897** **Dynamic of neurofilament light chains after cessation of natalizumab in patients with relapsing remitting and secondary progressive multiple sclerosis**
U. Proschmann (Dresden, DE)

Scientific Programme

- P898** **Modification of CSF findings in multiple sclerosis in the era of highly effective treatment options**
I. Giotaki (Goettingen, DE)
- P899** **A Phase 1, multiple-dose study of elezanumab (ABT-555) in patients with relapsing forms of multiple sclerosis**
B.A. Cree (San Francisco, US)
- P900** **Estriol-mediated neuroprotection in multiple sclerosis visualized by voxel-based morphometry**
A. MacKenzie-Graham (Los Angeles, US)
- P901** **Bioelectronic therapy attenuates demyelination in a lysolecithin-induced multiple sclerosis model**
N. Hamlin (Valencia, US)
- P902** **A study of prolactin elevation in the randomized controlled trial of domperidone for remyelination in relapsing remitting multiple sclerosis**
W.-Q. Liu (Calgary, CA)
- P903** **Investigating the effect of teriflunomide on diffuse brain tissue damage in the phase 3 TEMSO study**
T. Sprenger (Basel, CH)
- P904** **Cerebrospinal fluid penetration of dimethyl fumarate in patients with multiple sclerosis**
N. Penner (Cambridge, US)
- P905** **Treatment with high dose vitamin A (all-trans retinoic acid) in 3 patients with progressive multiple sclerosis - no clinical evidence of disease modifying effects but possible exacerbation of acute demyelination in one case**
C. Ruschil (Tübingen, DE)
- P906** **Alemtuzumab (ALE) achieves significant long-term improvement of disability and prognosis following rescue therapy in treatment-refractory MS**
S. Hunter (Franklin, US)
- P907** **Alemtuzumab outcomes over 6 years in RRMS patients who switched from SC IFNB-1a: follow-up of CARE-MS I patients (TOPAZ study)**
B. Van Wijmeersch (Hasselt, BE)
- P908** **Real-world data from over 10 years in the TYSABRI® Observational Program: long-term safety and effectiveness of natalizumab in relapsing-remitting multiple sclerosis patients**
L. Kappos (Basel, CH)
- P909** **7-year outcomes in MS patients of African descent treated with alemtuzumab: follow-up of CARE-MS I and II (TOPAZ Study)**
M. Williams (Atlanta, US)
- P910** **Sustained reduction in confirmed disability progression in patients with primary progressive multiple sclerosis treated with ocrelizumab in the open-label extension period of the Phase III ORATORIO trial**
J.S. Wolinsky (Houston, US)

Scientific Programme

- P911** **Longer-term safety with Siponimod treatment in multiple sclerosis: pooled analysis of data from the BOLD and EXPAND trials and their extensions**
L. Kappos (Basel, CH)
- P912** **Efficacy of subcutaneous interferon beta-1a in real-life clinical setting: a long-term multicenter follow-up study**
R. Totaro (L'Aquila, IT)
- P913** **Alemtuzumab improves clinical and MRI disease activity outcomes, including slowing of brain volume loss, in RRMS patients over 8 years: CARE-MS II follow-up (TOPAZ study)**
B.A. Singer (St. Louis, US)
- P914** **Subcutaneous interferon beta-1a, 10-year results from the United Kingdom Multiple Sclerosis Risk Sharing Scheme**
G. Harty (London, UK)
- P915** **Alemtuzumab and pregnancy - case series from the German MS and Pregnancy Registry, Norway and Serbia**
E.G. Celius (Oslo, NO)
- P916** **Efficacy and safety of continuous fingolimod treatment for at least 5 years in patients with relapsing-remitting multiple sclerosis: analysis of LONGTERMS data**
L. Kappos (Basel, CH)
- P917** **Real-world characterisation of peginterferon beta-1a associated flu-like symptoms and injection site reactions and impact of mitigation strategies coached in an individualized patient support program in Germany**
G. Niemczyk (Ismaning, DE)
- P918** **Teriflunomide for relapsing-remitting multiple sclerosis: a multicentre, non-interventional, prospective study in Germany (TAURUS-MS I)**
T. Rosenkranz (Hamburg, DE)
- P919** **Early start of high-efficacy therapies improves disability outcomes over 10 years**
A. He (Melbourne, AU)
- P920** **Delayed-release dimethyl fumarate demonstrates sustained efficacy over nine years in newly diagnosed patients with relapsing-remitting multiple sclerosis**
R. Gold (Bochum, DE)
- P921** **Real-world performance of fingolimod in Chilean patients: a longitudinal 7 year study**
E. Ciampi (Santiago, CL)
- P922** **Young adult RRMS patients treated with fingolimod in daily clinical practice: interim results of the non-interventional study PANGAEA**
U. Schulze-Topphoff (Nuremberg, DE)

Scientific Programme

- P923** **Pregnancy outcomes in patients with multiple sclerosis following maternal exposure to fingolimod**
Y. Geissbühler (Basel, CH)
- P924** **Longitudinal stability of anti-JC virus antibody index over two years in patients treated with natalizumab in the ASCEND study**
L. Mason (Cambridge, US)
- P925** **Infection risks among Swedish multiple sclerosis patients treated with rituximab compared to natalizumab, fingolimod, and injectable therapies: a nationwide cohort study**
T. Frisell (Stockholm, SE)
- P926** **Sex differences in the pivotal MS clinical trials: what is the evidence?**
R. Bove (San Francisco, US)
- P927** **Improvements in multiple domains of quality of life with alemtuzumab as assessed by the functional assessment of multiple sclerosis questionnaire over 6 years regardless of presence of thyroid adverse events**
A. Boster (Columbus, US)
- P928** **Ocrelizumab real-world experience**
B. Moss (Cleveland, US)
- P929** **Delayed-release dimethyl fumarate-associated lymphopenia: on-treatment and post-treatment implications**
A. Chan (Bern, CH)
- P930** **Teriflunomide-induced liver toxicity is mild and transitory. A 3-year retrospective, multicenter safety study**
A. Oterino (SANTANDER, ES)
- P931** **Age influences lymphopenia in MS patients treated with dimethyl-fumarate**
C.R. Mancinelli (Montichiari, IT)
- P932** **Genetic factors influencing the development of binding and neutralizing antibodies against interferon beta treatment in multiple sclerosis patients**
T.F. Andlauer (Munich, DE)
- P933** **Can ocrelizumab prevent MS reactivation after discontinuation of natalizumab?**
P. Repovic (Seattle, US)
- P934** **Can the induction of autoimmune antibodies after alemtuzumab treatment anticipate secondary autoimmunity?**
S. Sandgren (Gothenburg, SE)
- P935** **Lymphocyte subsets recovery time following first alemtuzumab course in multiple sclerosis patients previously treated with fingolimod**
J.M. Cabrera-Maqueda (Murcia, ES)

Scientific Programme

- P936 Does use of disease modified therapies for multiple sclerosis affect fertility and pregnancy outcomes?**
K. Pardo (Tel Aviv, IL)
- P937 GFAP α IgG-associated encephalitis upon daclizumab treatment of multiple sclerosis**
S. Engel (Mainz, DE)
- P938 Cardiac side effects and related cytokine profile in multiple sclerosis patients treated with alemtuzumab**
L. Brambilla (Milan, IT)
- P939 Saturation of alpha4 integrin (CD49d) in patients undergoing treatment with natalizumab in extended interval dose**
N. Zhu (Badalona, ES)
- P940 Oxidized-low-density-lipoprotein vaccination in EAE mice**
M.A. Gironi (milano, IT)
- P941 Remyelination in the optic nerve detected by visual evoked potentials**
I. Duncan (Madison, US)
- P942 Relationship between overall response score of disability in MS with patient-reported outcome SF-36**
I. Chang (Cambridge, US)
- P943 Patient-reported SymptoMScreen baseline scores in patients with relapsing-remitting multiple sclerosis enrolled in Phase IIIb studies of ocrelizumab (ENSEMBLE and CASTING)**
I. Kister (New York, US)
- P944 Increased blood levels of high density lipoprotein (HDL) in patients with multiple sclerosis treated with fingolimod or dimethyl fumarate - a beneficial side effect and /or a potential biomarker?**
E. Staun-Ram (Haifa, IL)
- P945 Reliability of cross-sectional and longitudinal brain volume measurements in MS patients using FreeSurfer: a multi-vendor MRI study at 3 Tesla**
H. Amiri (Amsterdam, NL)
- P946 Assessing the effect of teriflunomide on unique active lesions in patients with relapsing remitting multiple sclerosis**
A.E. Miller (New York, US)
- P947 No change in phosphorous magnetic resonance spectroscopy and diffusion tensor imaging in patients with progressive multiple sclerosis treated with high-dose biotin. A one-year follow-up study**
P. Kuv (Créteil, FR)
- P948 Additional courses of alemtuzumab improved clinical and MRI outcomes in pooled CARE-MS I and II patients with disease activity after two courses: analysis of patients who received ≥ 3 courses**
A. Traboulsee (Vancouver, CA)

Scientific Programme

- P949** **Effect of fingolimod on quality of life in paediatric MS: results of the phase 3 PARADIGMS Study**
L. Krupp (Stony Brook, US)
- P950** **Disease course and grey matter volume predict success of home-based cognitive rehabilitation in multiple sclerosis**
T. Fuchs (Buffalo, US)
- P951** **Effectiveness of walking exercise program in improving fatigue in relapsing remitting multiple sclerosis patients**
N.M. Shalaby (Cairo, EG)
- P952** **Real-world effectiveness of alemtuzumab in relapsing-remitting MS patients in Germany: interim results of an observational study (TREAT-MS)**
K. Akgün (Dresden, DE)
- P953** **Monitoring exercise in multiple sclerosis patients using the electronic medical record**
S. Rubin (Evanston, US)
- P954** **Transcranial direct current stimulation (tDCS) enhances cognitive remediation outcomes in multiple sclerosis: results from a randomized clinical trial of telerehabilitation with 40 at-home treatment sessions**
M. Shaw (New York, US)
- P956** **Beneficial effects of high-dose biotin (MD1003) in models of X-linked adrenoleukodystrophy**
A. Pujol (Barcelona, ES)
- P957** **Understanding magnetic resonance imaging in multiple sclerosis (UMIMS): effect of an interactive online education tool on emotions, attitude and knowledge in people with multiple sclerosis**
I. Schiffmann (Hamburg, DE)
- P958** **Application of a modified ketogenic diet in relapsing-remitting multiple sclerosis: a pilot study**
J.N. Brenton (Charlottesville, US)
- P959** **Therapeutic inertia in multiple sclerosis care: a comparative study between Spain and Chile**
G. Saposnik (Toronto, CA)
- P960** **Normalization of butyrate-producing Faecalibacterium after 12 weeks intervention with delayed-release dimethyl fumarate in multiple sclerosis**
T. Holmøy (Lørenskog, NO)
- P961** **Tolerability and safety of Dimethyl fumarate in relapsing multiple sclerosis: a prospective observational post-marketing study**
S. Urtiaga (Madrid, ES)
- P962** **Effect of combined aerobic-resistance circuit training on improving strength of respiratory muscles in individuals with mild to moderate multiple sclerosis: a pilot study**
M. Srp (Prague, CZ)

Scientific Programme

- P963** **Changes in spatio-temporal gait parameters after physical rehabilitation in multiple sclerosis: a descriptive analysis**
E.-R. Meza-Murillo (Barcelona, ES)
- P965** **Ofatumumab versus teriflunomide in relapsing multiple sclerosis: baseline characteristics of two pivotal phase 3 trials (ASCLEPIOS I and ASCLEPIOS II)**
L. Kappos (Basel, CH)
- P966** **Evaluation of pneumococcal and influenza vaccination coverage in patients with multiple sclerosis**
J. Hryb (Buenos Aires, AR)
- P967** **Understanding the role of decisional conflict in making choices about disease modifying therapy in multiple sclerosis?**
D. Wilkie (London, UK)
- P968** **Patients' and physicians' risk tolerance for multiple sclerosis therapies: preliminary results of an Italian survey**
V. Martinelli (Milan, IT)
- P969** **Natalizumab and end of dose interval symptoms in patients with relapsing remitting multiple sclerosis: role of serum cytokines**
C. Dekeyser (Gent, BE)

18:15 - 19:15

Satellite Symposium, Hall A

Satellite Symposium 8: Brain volume loss and biomarkers: how will new research change the clinical management of MS?

Supported by Celgene

Chairs

R. Gold (Bochum, DE)

18:15 - 18:20

246

Welcome and introduction

R. Gold (Bochum, DE)

18:20 - 18:35

247

Soluble biomarkers and their utility: diagnostics and their expanding role in MS practice

H. Wiendl (Münster, DE)

18:35 - 18:50

248

Imaging: beyond the brain?

B.A. Cree (San Francisco, US)

18:50 - 19:05

249

A grey area: what is important and how to assess it?

N. De Stefano (Siena, IT)

19:05 - 19:15

250

Closing

R. Gold (Bochum, DE)

Scientific Programme

18:15 - 19:15		Satellite Symposium, Hall B Satellite Symposium 9: Combining DMT: a potential way forward for RMS* Supported by Actelion-Janssen Neuroscience *DMT, disease-modifying therapy Chairs L. Kappos (Basel, CH)
18:15 - 18:20	251	Welcome and introduction L. Kappos (Basel, CH)
18:20 - 18:30	252	Do we need combination therapy to advance in RMS? J. Chataway (London, UK)
18:30 - 18:40	253	Combination therapy: a well-trodden path in other complex diseases L. Kappos (Basel, CH)
18:40 - 18:50	254	The rationale for investigating DMF-S1PR combination therapy A. Bar-Or (Philadelphia, US)
18:50 - 19:10	255	Q & A and closing remarks L. Kappos (Basel, CH) J. Chataway (London, UK) A. Bar-Or (Philadelphia, US)

Scientific Programme

Friday, 12 October 2018

07:30 - 08:30		Satellite Symposium, Hall A Satellite Symposium 10: Treatment sequencing in MS: how do you choose the right DMD for your patient? Supported by Merck Chairs C. Kleinschnitz (Essen, DE) J. Oh (Toronto, CA)
07:30 - 07:35	256	Welcome C. Kleinschnitz (Essen, DE)
07:35 - 07:55	257	Treatment selection and switching: a road map J. Oh (Toronto, CA) E. Kubala Havrdová (Prague, CZ)
07:55 - 08:25	258	Treatment selection and switching: case presentations C. Kleinschnitz (Essen, DE) S. Hodgkinson (NL)
08:25 - 08:30	259	Concluding remarks J. Oh (Toronto, CA)
08:30 - 10:00		Scientific Session, Hall A Scientific Session 11: Approaches for tackling treatment failure Chairs A.J. Coles (Cambridge, UK) A.H. Cross (St. Louis, US)
08:30 - 08:50	260	How to define treatment failure? J. Sastre-Garriga (Barcelona, ES)
08:50 - 09:10	261	Strategies for switching therapy: how good is the evidence? F. Lublin (New York, US) Platform presentations of related original papers
09:10 - 09:22	262	Value of serum neurofilament light chain levels as a biomarker of suboptimal treatment response in MS clinical practice Ö. Yaldizli (Basel, CH)
09:22 - 09:34	263	Treatment escalation leads to fewer relapses compared with switching to another moderately effective therapy T. Chalmer (Copenhagen, DK)

Scientific Programme

09:34 - 09:46	264	Alemtuzumab after natalizumab SWitch in evolving rapidly severe multiple sclerosis (ANSWERS MS): long-term UK & Ireland experience P. Gallagher (Glasgow, UK)
09:46 - 09:58	265	Shift from fingolimod to alemtuzumab: what happens next? J. Frau (Cagliari, IT)
08:30 - 10:00		Scientific Session, Hall B Scientific Session 12: Recent development in imaging for treatment monitoring Chairs D. Miller (London, UK) V. Callot (Marseille, FR)
08:30 - 08:50	266	Recent developments in spinal cord imaging O. Ciccarelli (London, UK)
08:50 - 09:10	267	Atrophy N. De Stefano (Siena, IT)
		Platform presentations of related original papers
09:10 - 09:22	268	Cranio-caudal patterns of cervical cord atrophy progression in MS according to disease phenotype and clinical worsening: a multicenter study M.A. Rocca (Milan, IT)
09:22 - 09:34	269	7T MP2RAGE MRI for assessment of myelination status in white matter lesions of multiple sclerosis H. Kolb (Bethesda, US)
09:34 - 09:46	270	Remyelination fails in the periventricular white matter in MS E. Poirion (Paris, FR)
09:46 - 09:58	271	In vivo assessment of myelin breakdown pattern in multiple sclerosis: a hybrid PET/MR [18F]florbetaben study A. Carotenuto (London, UK)
08:30 - 10:00		Scientific Session, Hall C Scientific Session 13: Robotic and telehealth supported rehabilitation and exercise training in MS Chairs J. Kesselring (Valens, CH) A. Achiron (Tel Aviv, IL)
08:30 - 08:50	272	Robot-assisted training in MS P. Feys (Hasselt, BE)

Scientific Programme

08:50 - 09:10	273	Telehealth applications for supporting exercise behavior in MS R. Motl (Birmingham, US)
		Platform presentations of related original papers
09:10 - 09:22	274	A comparison of human and digital speech analysis to describe and monitor cerebellar dysfunction and disease severity in multiple sclerosis G. Noffs (Carlton, AU)
09:22 - 09:34	275	Association of a technology-enabled 9-Hole Peg Test with patient reported outcomes and Imaging metrics in a large multiple sclerosis clinic population L. Baldassari (Cleveland, US)
09:34 - 09:46	276	Can motor fatigue be measured? - On the relation of fatigue trait, perceived exertion, and gait analysis measures after 6minute walking D. Drebingner (Berlin, DE)
09:46 - 09:58	277	Novel multi-sensor algorithm captures subtle progression over one year in multiple sclerosis K.M. Krysko (San Francisco, US)
08:30 - 10:00		Educational Session, Hall D Educational Session 23: NMO-spectrum disorders: current concepts and clinical management Level: Intermediate Chairs F. Paul (Berlin, DE) J. Palace (Oxford, UK)
08:30 - 09:00	278	NMOSD and AQP4-Ab positive disease classification and update on epidemiology and phenotypic features F. Paul (Berlin, DE)
09:00 - 09:30	279	MOG antibody disease update and differentiation from MS and AQP4-Ab positive disease K. Fujihara (Sendai, JP)
09:30 - 10:00	280	Treatment of NMOSD using case studies J. Palace (Oxford, UK)

Scientific Programme

08:30 - 10:00

Educational Session, Hall E

Educational Session 24: The use of stem cells in MS: where are we and where are we going?

Level: Intermediate

Chairs

D. Karussis (Jerusalem, IS)
A. Uccelli (Genoa, IT)

08:30 - 09:00

281

Overview of the rationale and the options of stem cells therapies in MS and review of the existing clinical experience

D. Karussis (Jerusalem, IS)

09:00 - 09:30

282

Mesenchymal stem cells in MS: possible mechanisms of action and future directions

A. Uccelli (Genoa, IT)

09:30 - 10:00

283

The rationale and the existing clinical data using haematopoietic stem cells in MS

P.A. Muraro (London, UK)

10:30 - 12:00

Scientific Session, Hall A

Scientific Session 14: Recent developments in progressive MS

Chairs

L. Kappos (Basel, CH)
R. Kapoor (London, UK)

10:30 - 10:50

284

Which subgroups of progressive MS should be treated?

X. Montalban (Toronto, CA)

10:50 - 11:10

285

Update on neuroprotection trials in progressive MS

R.J. Fox (Cleveland, US)

Platform presentations of related original papers

11:10 - 11:22

286

Neurofilament light levels in the blood of patients with secondary progressive MS are higher than in primary progressive MS and may predict brain atrophy in both MS subtypes

J. Kuhle (Basel, CH)

11:22 - 11:34

287

Slowly evolving lesions and relation to disability in a SPMS cohort

A. Calvi (London, UK)

11:34 - 11:46

288

A molecular characterization of meningeal inflammatory infiltrates in the progressive multiple sclerosis brain

L. Fuentes Font (London, UK)

Scientific Programme

11:46 - 11:58 289 Efficacy, safety and tolerability of IB-MS versus placebo in patients with progressive forms of MS: preliminary results from a phase II, randomized, placebo-controlled, double blind, proof of concept study
E. Ciampi (Santiago, CL)

10:30 - 12:00

Scientific Session, Hall B

Scientific Session 15: "MS spectrum disease"?

Chairs

H. Wekerle (Martinsried, DE)
H. Lassmann (Wien, AT)

10:30 - 10:50 290

Pathologic evidence for disease heterogeneity
W. Brück (Göttingen, DE)

10:50 - 11:10 291

MRI evidence for disease heterogeneity
D.S.S. Reich (Bethesda, US)

Platform presentations of related original papers

11:10 - 11:22 292

Diffusion basis spectrum imaging for identifying subtypes of multiple sclerosis
A. Shirani (St. Louis, US)

11:22 - 11:34 293

Peripapillary hyperreflective ovoid mass-like structures in multiple sclerosis are associated with disease progression
A. Petzold (London, UK)

11:34 - 11:46 294

Clinical features of patients with anti-myelin oligodendrocyte glycoprotein (MOG) antibody-positive optic neuritis with a certain antibody-binding epitope on human MOG extracellular domain
K. Tanaka (Niigata, JP)

11:46 - 11:58 295

Evaluation of treatment response in adults with relapsing MOG-Ab-associated disease
A. Cobo-Calvo (Lyon, FR)

10:30 - 12:00

Scientific Session, Hall C

Scientific Session 16: Understanding MS by integrating clinical and multiOMICS data

Chairs

P. De Jager (New York, US)
F. Quintana (Boston, US)

10:30 - 10:50 296

From MS genetics to pathogenetic concepts
L. Fugger (Oxford, UK)

10:50 - 11:10 297

MultiOMics in MS
C. Cotsapas (New Haven, US)

Scientific Programme

Platform presentations of related original papers

11:10 - 11:22	298	DNA methylation signatures of monozygotic twins clinically discordant for multiple sclerosis L.A. Gerdes (Munich, DE)
11:22 - 11:34	299	Multiple sclerosis associated SNPs influencing B cell expression of co-stimulatory receptors and T cell proliferation and cytokine secretion profile D. He (Cambridge, UK)
11:34 - 11:46	300	Single-cell RNA-sequencing identifies putative multiple sclerosis-associated microglial subtypes V. Menon (New York, US)
11:46 - 11:58	301	Bile acid metabolism is altered in MS and supplementation leads to amelioration of neuroinflammation P. Bhargava (Baltimore, US)

Educational Session, Hall D

10:30 - 12:00 Educational Session 25: MS mimicks: genetic disorders

Level: Basic

Chairs

O. Boespflug-Tanguy (Paris, FR)
F. Mochel (Paris, FR)

10:30 - 11:00	302	Genetic mimicks with acute presentation O. Boespflug-Tanguy (Paris, FR)
11:00 - 11:30	303	Genetic mimicks with progressive presentation F. Mochel (Paris, FR)
11:30 - 12:00	304	Treatments in genetic mimicks of MS O. Boespflug-Tanguy (Paris, FR) F. Mochel (Paris, FR)

Educational Session, Hall E

10:30 - 12:00 Educational Session 26 (MAGNIMS): From structural and functional connectivity to clinical impairment in multiple sclerosis

Level: Advanced

Chairs

M.A. Rocca (Milan, IT)
D. Chard (London, UK)

Scientific Programme

10:30 - 11:00 306 Structural connectivity
M. Schoonheim (Amsterdam, NL)

11:00 - 11:30 307 Functional connectivity
M.A. Rocca (Milan, IT)

11:30 - 12:00 308 Clinical significance
D. Chard (London, UK)

12:00 - 13:00
Scientific Session, Hall E
Google Hangout

A google hangout broadcast from ECTRIMS 2018 with Barts MS researchers sharing highlights from the meeting.

Chairs
M. Marta (London, UK)
A. Thomson (London, UK)

12:00 - 13:00 309 ECTRIMS 2018 Highlights
D. Baker (London, UK)
S. Gnanapavan (London, UK)

12:15 - 14:15
Poster Sessions, Poster exhibition
Poster Session 3

P970 Prediction of conversion to multiple sclerosis using the 2017 McDonald and 2016 MAGNIMS criteria in patients with clinically isolated syndrome
A. Miclea (Bochum, DE)

P971 Differential diagnosis of multiple sclerosis with machine learning-based central vein sign recognition
J. Richiardi (Lausanne, CH)

P972 Sensitivity and specificity of 2017 McDonald criteria for multiple sclerosis in patients with clinically isolated syndrome
F. Gobbin (Verona, IT)

P973 Performance of the 2010 and 2017 revised McDonald criteria in an Italian retrospective cohort of patients with clinically isolated syndrome
V. Camera (Modena, IT)

P974 Treatment in attacks of NMOSD: steroids versus plasma exchange in a Colombian cohort
L.M. Giraldo (Medellín, CO)

P975 A brief language-independent and self-administered computerized test for cognitive assessment in multiple sclerosis (MS)
S.-M. Khaligh-Razavi (Tehran, IR)

Scientific Programme

- P976** **The review of systems questionnaire discriminates medically unexplained neurologic symptoms from neurologic disease in a multiple sclerosis referral clinic**
B. Jones (Birmingham, US)
- P977** **Longitudinally extensive transvers myelitis: a single institution experience**
E. Yilmaz (Ankara, TR)
- P978** **Neuromyelitis optica misdiagnosed as multiple sclerosis: a hospital-based study**
A. Villa (Buenos Aires, AR)
- P979** **Are recurrent myelitis a prodromic phase of inflammatory diseases or a distinct inflammatory condition?**
L. Cacciaguerra (Milan, IT)
- P980** **Clinical and therapeutic predictors of relapse and disability outcomes in neuromyelitis optica spectrum disorder**
A. Kunchok (Melbourne, AU)
- P981** **AQP4-autoimmunity in Japan and Germany - a comparative retrospective study in neuromyelitis optica spectrum disorders**
A.U. Brandt (Berlin, DE)
- P982** **Early clinical predictors of severe MS**
C. Malpas (Melbourne, AU)
- P983** **MOG-IgG antibodies in autoimmune demyelinating CNS disorders - retrospective analysis of a monocentric patient cohort**
K. Veselaj (Bern, CH)
- P984** **Disease activity during pregnancy in patients with AQP4-Ab positive, MOG-Ab positive or double negative NMOSD**
C. Alves Do Rego (Strasbourg, FR)
- P985** **Tumefactive multiple sclerosis: clinical, radiological and cognitive features**
C. Pita (Buenos Aires, AR)
- P986** **Long-term cognitive consequences of paediatric-onset multiple sclerosis**
K.A. McKay (Stockholm, SE)
- P987** **Cortical abnormalities and cognitive impairment in pediatric MS patients**
E. De Meo (Milan, IT)
- P988** **Alterations along the posterior visual pathway in pediatric-onset multiple sclerosis**
R. Datta (Philadelphia, US)
- P989** **MOG antibodies- associated disease in children: a French prospective cohort study**
K. Deiva (Kremlin Bicêtre, FR)
- P990** **Long-term disability progression of paediatric-onset multiple sclerosis**
K.A. McKay (Stockholm, SE)

Scientific Programme

- P991 The relationship between skin pigmentation, HLA, vitamin d status and pediatric-onset multiple sclerosis**
C. Dunn (Philadelphia, US)
- P992 Time to relapse is comparable in pediatric- and adult-onset multiple sclerosis patients after the initiation of disease-modifying therapy**
B.F. Décard (Basel, CH)
- P993 MRI markers of disease severity in patients with CIS and MS with EDSS ≤ 3 and their relation to functional performance - a cross-sectional study**
L. Rasche (Berlin, DE)
- P994 Aggressive transformation of secondary progressive MS**
W.K.W. Fung (Swansea, UK)
- P995 Reproductive history in a Danish nationwide registry-based study with a century's follow-up**
M. Magyari (Copenhagen, DK)
- P996 Hair and eye colour, skin reactivity, and melanin production gene mutations as risk factors for multiple sclerosis: a case-control study in Sweden**
K.A. Smith (Stockholm, SE)
- P997 A multi-national study of socioeconomic status and disability progression in multiple sclerosis**
K. Harding (Cardiff, UK)
- P998 US-based African Americans with multiple sclerosis have greater disability and lower socio-economic status than Caucasian Americans**
K. Gray-Roncal (Baltimore, US)
- P999 Association between demographic factors, DMT utilization and DMT switching on MS relapse rates**
J. Marriott (Winnipeg, CA)
- P1000 Care-seeking of patients with multiple sclerosis over 2010-2015 in France: a nationwide study using health administrative data**
J. Roux (Rennes, FR)
- P1001 Effect of dietary patterns on disease activity in early multiple sclerosis**
D. Chermon (Ramat Gan, IL)
- P1002 The epidemiology of pediatric multiple sclerosis in Tehran**
S. Eskandarieh (Tehran, IR)
- P1003 Channeling to therapy in Swedish multiple sclerosis patients, with special reference to rituximab**
B. Delcoigne (Stockholm, SE)
- P1004 Interferon- β /glatiramer acetate treatment during lactation in women with multiple sclerosis**
K. Hellwig (Bochum, DE)

Scientific Programme

- P1005 Epidemiological features and persistence to disease-modifying therapies in a population of multiple sclerosis patients from four provinces of Veneto region**
A. Marangi (Verona, IT)
- P1006 Multiple sclerosis and migration: a comparison between patients living in Sicily and born in different countries**
A. Bianchi (Palermo, IT)
- P1007 Changes of disease characteristics and disease-modifying treatment within one year in the National German MS cohort**
A. Salmen (Bochum, DE)
- P1008 Neurofilament light chain levels in pregnant multiple sclerosis patients: a prospective cohort study**
J.P. Cuello (madrid, ES)
- P1009 Sex differences in peripheral B cell composition underlie more progressive disease course in male patients**
F. Gilli (Lebanon, US)
- P1010 Reproductive decision-making in women with multiple sclerosis in the New York State Multiple Sclerosis Consortium**
C.B. Vaughn (Buffalo, US)
- P1011 Neurophysiological correlates of fatigue in people with multiple sclerosis**
P. Ellison (Newcastle Upon Tyne, UK)
- P1012 Central neuropathic pain in multiple sclerosis is associated with structural and functional damage of pain processing and pain modulation pathways**
R. Defrin (Tel-Aviv, IL)
- P1013 Local dynamic stability versus kinematic variability during single and dual task walking conditions in multiple sclerosis patients with and without a previous fall history**
S. Tajali (khuzestan, IR)
- P1014 Atypical clinical features as a presentation of multiple sclerosis**
C. Pita (Buenos Aires, AR)
- P1015 Subclinical cochlear involvement in newly diagnosed relapsing-remitting multiple sclerosis**
M. Albanese (Rome, IT)
- P1016 Multiple sclerosis diagnosis is not the only determinant of neurofilament light protein fluctuations in serum**
C. Bridel (Amsterdam, NL)
- P1017 Heterogeneity of EDSS progression assessment in patients with MS in different geographical regions**
F. Bovis (Genova, IT)
- P1018 Benchmarks of manual dexterity and walking speed in a large, representative patient population**
C. deMoor (Cambridge, US)

Scientific Programme

- P1019 The arm function in multiple sclerosis questionnaire (AMSQ), a cross cultural validation**
N. Kalkers (Amsterdam, NL)
- P1020 Executive functions but processing speed impacts on gait phases**
G. Coghe (Cagliari, IT)
- P1021 Cognition in secondary progressive multiple sclerosis (SPMS)**
A. Doshi (London, UK)
- P1022 Feasibility and validity of the Biodex Balance System in multiple sclerosis**
F. Söke (ANKARA, TR)
- P1023 Comparing “Gold Standard” prospective daily self-report fall calendars with a real-time body-worn self-report device in multiple sclerosis**
M. Cameron (Portland, US)
- P1024 Upper limb function correlates with objective measures of damage in MS: an OCT and MRI study**
A. Signori (Genoa, IT)
- P1025 Implementation of technology-enabled data capture in routine clinical care of patients with multiple sclerosis**
G. Macaron (Cleveland, US)
- P1026 MS race: how does speed affect our patients?**
R. Alonso (Ciudad de Buenos Aires, AR)
- P1027 The relationship between obstructive sleep apnea and age, gender, EDSS, disease duration, and BMI in people with multiple sclerosis who report fatigue: more than size matters**
J. Srinivasan (Patchogue, US)
- P1028 Multiple sclerosis and the limited association between EDSS and PDDS and the NeuroTrax assessment of cognitive disability**
C. Geremakis (Cambridge, US)
- P1029 Validation of fully automated total brain volumetric analysis by AccuBrain as compared to SIENAX for multiple sclerosis**
A. Lau (Hong Kong, HK)
- P1030 Introducing Multiple Screening: a self-explanatory digital screening tool for cognitive deficits in MS**
L. van Dongen (Amsterdam, NL)
- P1031 Systematic multidimensional clinical point-of-care monitoring of people with multiple sclerosis using 3test**
K. Allen-Philbey (London, UK)
- P1032 Effect of MD1003 (high dose pharmaceutical grade biotin) on remotely monitored ambulatory activity in progressive MS: initial step count data of the phase 3 SPI2 study**
B.A. Cree (San Francisco, US)

Scientific Programme

- P1033 Automated assessment of new and enlarged white matter and cortical lesions in early multiple sclerosis**
M.J. Fartaria (Lausanne, CH)
- P1034 Re-evaluating an algorithm to identify multiple sclerosis relapse in insurance claims databases**
E. Yang (South San Francisco, US)
- P1035 Real-world outcome in multiple sclerosis estimated from two cost of illness studies and MS clinic data in the Czech Republic**
G. Kobelt (Stockholm, SE)
- P1036 Disposable income trajectories of working-aged people with a multiple sclerosis diagnosis: a Swedish register-based cohort study**
C. Murley (Stockholm, SE)
- P1037 High fidelity fixational eye movements as a novel potential biomarker for disability in multiple sclerosis**
C.K. Sheehy (San Francisco, US)
- P1038 Non-random neurodegeneration of inner retinal layers connectome in relapsing remitting multiple sclerosis**
D. Landi (Rome, IT)
- P1039 Intrathecal oligoclonal IgG synthesis is associated with retinal axonal loss in early diagnosed relapsing remitting multiple sclerosis**
C.G. Chisari (Catania, IT)
- P1040 Novel inflammatory ophthalmological presentations distinct from optic neuritis that are associated with myelin oligodendrocyte glycoprotein antibodies**
S. Ramanathan (Sydney, AU)
- P1041 A new association: acute macular neuro retinopathy in acute optic neuritis**
R. Deschamps (Paris, FR)
- P1042 Contribution of visual evoked potentials in the diagnosis and characterization of visual impairment**
C. Mhiri (Sfax, TN)
- P1043 Tissue volume dependent retinal blood perfusion in patients with multiple sclerosis**
J. Wang (MIAMI, US)
- P1044 Macular ganglion cell layer allows the identification of subclinical optic neuritis**
M. Pengo (Padova, IT)
- P1045 Quantitative pupillary pathway assessment with automated pupillometry and its correlation with visual evoked potential latency in multiple sclerosis without a history of optic neuritis**
S. Samadzadeh (Bamberg, DE)

Scientific Programme

- P1046** **Influence of depression on subjective rating of physical disability in a large clinical cohort**
E. Alshehri (Cleveland, US)
- P1047** **Pain syndromes in NMOSD - results of a nationwide multicenter study in Germany using the Neuromyelitis Optica Study Group registry**
I. Ayzenberg (Bochum, DE)
- P1048** **The systemic sarcoidosis and multiple sclerosis dilemma: Serum Amyloid A in cerebrospinal fluid as a useful marker to exclude neurosarcoidosis out of the equation**
M. Reyes-Mantilla (Baltimore, US)
- P1049** **Impact of comorbidity and DMT use on disability status by DMT group in participants in the Pacific Northwest MS Registry**
E. Baraban (Portland, US)
- P1050** **Sleep in Portuguese patients with multiple sclerosis: questionnaire-based study**
A. Barros (Lisboa, PT)
- P1051** **Increased risk of infections in patients diagnosed with multiple sclerosis (MS): a study in the UK Clinical Practice Research Database (CPRD)**
S. Jick (Boston, US)
- P1052** **Multiple sclerosis patients are more frequently readmitted for depression or suicide attempt compared to people with asthma or rheumatoid arthritis**
D. Kurz (New York, US)
- P1053** **The effect of smoking on 'normal appearing white matter' and lesion load in periventricular regions of patients with multiple sclerosis**
A. Pichler (Graz, AT)
- P1054** **Occipital neuralgia and multiple sclerosis. A case series. Hospital del Mar, Barcelona**
A. Barguilla Arribas (Barcelona, ES)
- P1055** **Activation of necroptosis signaling in cortical neurons in progressive MS**
C. Picón (Madrid, ES)
- P1056** **Complement receptor-positive microglia at the expanding grey matter lesion edge**
R. Evans (Swansea, UK)
- P1057** **Single-nuclei transcriptomics uncovers cell-type specific changes and lesion progression in multiple sclerosis**
L. Schirmer (San Francisco, US)
- P1058** **Extremes of thalamic atrophy - MRI and histopathologic correlations in advanced multiple sclerosis**
K. Mahajan (Cleveland, US)
- P1059** **Dysfunctional complement activation and regulation associate with neuronal injury in progressive multiple sclerosis**
L. Watkins (Swansea, UK)

Scientific Programme

- P1060 Targeted blood brain barrier opening induces focal microglia/macrophage activation and affects brain stiffness in experimental autoimmune encephalomyelitis**
K. Schregel (Göttingen, DE)
- P1061 The development of a new model of progressive multiple sclerosis**
J. Roodseelaar (Oxford, UK)
- P1062 Chronic white matter atrophy after acute cuprizone exposure may be due to transmissible misfolded proteins**
A.V. Caprariello (Calgary, CA)
- P1063 Establishing a human neuronal stem cell derived culture model to study neurodegeneration and neuroregeneration in multiple sclerosis**
M. Alisch (Berlin, DE)
- P1064 The role of interoception in multiple sclerosis fatigue**
I. Bogdan (Brighton, UK)
- P1065 The new in vitro blood-brain barrier (BBB) model under shear forces with multi-culture of BBB components in multiple sclerosis**
Y. Takeshita (Yamaguchi, JP)
- P1066 Imaging and biodistribution of a novel anti-CD20 antibody following subcutaneous administration in control and experimental autoimmune encephalomyelitis-variant mice**
M.-A. Migotto (Brisbane, AU)
- P1067 In vivo modeling of the nascent multiple sclerosis lesion: Clostridium perfringens epsilon toxin induces blood brain barrier permeability via caveolae-dependent transcytosis and requires the myelin and lymphocyte protein**
J. Linden (New York, US)
- P1068 Characterization of the multiple sclerosis associated locus on chromosome 17 in the Continental Italian population**
M. Sorosina (Milan, IT)
- P1069 CSF B-cells in relapsing multiple sclerosis are driven towards a similar, antigen-experienced, inflammatory fate**
A. Ramesh (San Francisco, US)
- P1070 New approach to old data - machine learning algorithm identifies KIR-HLA gene associations in MS, which differ depending on subtype**
S. Burnard (Callaghan, AU)
- P1071 SLFN12 is differentially methylated in multiple sclerosis CD4+ and CD8+ T cells**
I.S. Brorson (Oslo, NO)
- P1072 Lipid-related genetic polymorphisms modify the association between lipids and disability progression in multiple sclerosis (MS)**
Y. Zhang (Hobart, AU)

Scientific Programme

- P1073** **MicroRNA and transcription factor co-regulatory network analysis: a combined bioinformatics and molecular strategy for uncovering genetic hub regulatory elements in multiple sclerosis pathogenesis**
N. Nuzziello (Bari, IT)
- P1074** **Dominant role of circular RNA in miRNA circuit in multiple sclerosis**
A. Żurawska (Olsztyn, PL)
- P1075** **Integrin alpha8 is a novel mediator of activated, proinflammatory T lymphocyte migration across the CNS barriers**
E. Gowing (Montreal, CA)
- P1076** **Naïve T-cell homeostasis differs between patients with two subtypes of multiple sclerosis**
D. Haegert (Montreal, CA)
- P1077** **Molecular mimicry as a potential trigger in post-vaccination MOG-seropositive NMOSD**
A.-K. Pröbstel (San Francisco, US)
- P1078** **FoxA1 in synergy with IFN β controls PDL1 expression in anti-inflammatory T cells via binding to a 60-nucleotide region in the Pdl1 promoter**
M. Hadi (Copenhagen, DK)
- P1079** **Sema4A expressed on hematopoietic cells determines interferon-beta response in Th17 autoimmunity**
M. Kinoshita (Suita, JP)
- P1080** **Role of vitamin D in the expression of TGF β signalling in patients with relapsing remitting multiple sclerosis**
J.M. García-Domínguez (Madrid, ES)
- P1081** **Single cell transcriptomics identifies an MS-specific composition and expression of cerebrospinal fluid cells**
G. Meyer zu Hörste (Münster, DE)
- P1082** **Herpesviruses seroprevalence and B-cell immunophenotype in multiple sclerosis**
A. Zabalza (Barcelona, ES)
- P1083** **Mechanisms of dysfunction of regulatory B cell activity in multiple sclerosis**
M.T. Cencioni (London, UK)
- P1084** **Immunophenotyping of brain associated immune compartments**
D. Schafflick (Münster, DE)
- P1085** **PD-L1 and PD-L2 expression is increased in CNS infiltrating neutrophils in experimental autoimmune encephalomyelitis**
S. Gelibter (Milano, IT)
- P1086** **Dietary supplementation with conjugated linoleic acid influences central nervous system autoimmunity via the gut-central nervous system axis**
A.-K. Fleck (Münster, DE)

Scientific Programme

- P1087** **Short chain fatty acids levels in plasma of multiple sclerosis patients: a correlation with the disability of the disease and the activation of the immune system**
S. Perez Perez (Madrid, ES)
- P1088** **The Aryl Hydrocarbon Receptor compensates the adverse impact of smoking on the experimental autoimmune encephalomyelitis**
J. Berg (Bochum, DE)
- P1089** **Health literacy about diet in MS in an Australian MS cohort**
J. Lechner-Scott (New Lambton, AU)
- P1091** **A cell-specific and region-specific transcriptomics approach for discovery of disability-specific neuroprotective treatments in MS**
R. Voskuhl (Los Angeles, US)
- P1092** **Targeting S100B reduces demyelination-associated pathogenesis in ex vivo and in vivo models mimicking multiple sclerosis**
A. Fernandes (Lisbon, PT)
- P1093** **Adaptive motor learning and its consolidation in multiple sclerosis**
L. Nakchbandi (Würzburg, DE)
- P1094** **Local GM demyelination and remote microstructural damage in connected WM tracts both contribute to cortical neurodegeneration in MS**
S. Kiljan (Amsterdam, NL)
- P1095** **Neuroprotective role of neuronal miR-27a and miR-223 during inflammation**
B. Morquette (Montreal, CA)
- P1096** **Affection of thalamic subnuclei in NMOSD: evidence of anterograde transsynaptic degeneration in the visual pathway**
A. Papadopoulou (Basel, CH)
- P1097** **Imaging of the mechanisms of thalamic damage in pediatric multiple sclerosis**
E. De Meo (Milan, IT)
- P1098** **Longitudinal characterization of optic nerve and retinal pathology in experimental autoimmune encephalomyelitis**
P. Manogaran (Zurich, CH)
- P1099** **Individual grey matter network properties forecast disease progression in multiple sclerosis**
G. Gonzalez Escamilla (Mainz, DE)
- P1100** **Understanding memory impairment in multiple sclerosis - contributions of macro and micro-structural alterations in the thalamus and hippocampus**
E. Devenney (Sydney, AU)
- P1101** **Insights into remyelination failure in progressive multiple sclerosis - microRNA miR-145-5p negatively regulates myelination**
S. Kornfeld (Ottawa, CA)

Scientific Programme

- P1102** **Age-related dysfunction of mitochondria is associated with chronic course and severity of EAE**
K. Yokoyama (Tokyo, JP)
- P1103** **Acute relapse recovery in pediatric multiple sclerosis**
M. Gurevich (Ramat-Gan, IL)
- P1104** **Stat1 integrates cytokine sensing to regulate neural stem cell function by transcriptional repression of Sox9 and Zic1**
J. Imitola (Columbus, US)
- P1105** **Increased [11C]TMSX binding to A2A receptors around MS plaques and the normal appearing white matter in secondary progressive multiple sclerosis is explained by astrocytic A2A expression**
A. Vuorimaa (Turku, FI)
- P1106** **Distinct patterns of grey matter atrophy and white matter disruption concur and are clinically relevant in relapsing-remitting MS patients**
J. Zhang (Siena, IT)
- P1107** **Specific patterns of thalamic functional connectivity changes related to disability and cognitive impairment in multiple sclerosis**
M. Schoonheim (Amsterdam, NL)
- P1108** **A hybrid [18F]florbetapir-PET/MR imaging study to assess in vivo demyelination in multiple sclerosis.**
A. Carotenuto (London, UK)
- P1109** **Lobular cerebellar atrophy and balance deficit in a cohort of patients with multiple sclerosis**
S. Ruggieri (Rome, IT)
- P1110** **Comparison of cortical lesion frequency by type as detected by 3T and 7T multi-contrast MRI in patients with multiple sclerosis**
J. Maranzano (Montreal, CA)
- P1111** **Brainstem atrophy in multiple sclerosis correlates with disability**
L. Sander (Basel, CH)
- P1112** **Quantification of white matter tract integrity in primary-progressive multiple sclerosis: a longitudinal study**
M. Margoni (Padua, IT)
- P1113** **Increased functional efficiency of the sensorimotor network is associated with disability in multiple sclerosis**
M. Strik (Amsterdam, NL)
- P1114** **Thalamic volume predicts disability progression in multiple sclerosis: a 6-year prospective study**
E. Sotirchos (Baltimore, US)
- P1115** **Monitoring myelin changes using advanced magnetic resonance imaging in multiple sclerosis patients treated with ocrelizumab over 48 months**
I. Vavasour (Vancouver, CA)

Scientific Programme

- P1116 Serum neurofilament light chain correlates with cortical lesion load at 3T and 7T in early RRMS patients**
P.-J. Lu (Basel, CH)
- P1117 Creating accurate reference segmentations of deep GM structures in MS patients by fast semi-automated outlining**
A. de Sitter (Amsterdam, NL)
- P1118 Multimodal assessment of normal-appearing corpus callosum is a useful marker of disability in relapsing-remitting multiple sclerosis: an MRI cluster analysis study**
S. Barone (Catanzaro, IT)
- P1119 Functional connectome analysis reveals different alterations between relapsing remitting multiple sclerosis with short and longer disease duration**
G. Castellazzi (London, UK)
- P1120 Feasibility of fully automated atrophy measurement of the upper cervical spinal cord for group analyses and patient-individual diagnosis support in MS**
J. Gregori (Heidelberg, DE)
- P1121 Characterization of multiple sclerosis grey and white matter pathology in the brain and spinal cord at 7 Tesla MRI**
R. Ouellette (Stockholm, SE)
- P1122 Using MRI to explore myelin in normal appearing and diffusely abnormal white matter in multiple sclerosis**
I. Vavasour (Vancouver, CA)
- P1123 In vivo evaluation of multiple sclerosis pathology with combined perfusion and diffusion MR imaging**
A. Carotenuto (London, UK)
- P1124 Pediatric and adult MS: a longitudinal multimodal MRI study to explore the substrates of the different clinical courses**
E. De Meo (Milan, IT)
- P1125 Association of cervical spinal cord area changes with atrophy of cortical and subcortical brain regions in clinically isolated syndromes**
R. Alyafeai (Barcelona, ES)
- P1126 Inflammatory demyelination in the cortex contributes to individual trajectory of disability worsening in MS**
M. Boudot De La Motte (Paris, FR)
- P1127 Repurposing stilbene derivatives as myelin radiotracers for PET imaging: a study comparing ¹¹C-MeDAS, ¹⁸F-florbetapir and ¹⁸F-florbetaben with the benzothiazole ¹¹C-PiB**
M. Tonietto (Paris, FR)
- P1128 Microstructural complexity of MS lesions revealed by orientation dispersion and multi-parametric MRI**
M. Bozzali (Brighton, UK)

Scientific Programme

- P1129** **Default Network Index: a novel, clinically-informative marker of memory status in multiple sclerosis**
V. Leavitt (New York, US)
- P1130** **TAPAS: threshold adjustment to probability map automatic segmentations**
A.M. Valcarcel (Philadelphia, US)
- P1131** **Ultra-high MR field quantification of infratentorial atrophy in multiple sclerosis**
M. Inglese (New York, US)
- P1132** **Choroid plexus change in neuromyelitis optica spectrum disorder**
H. Kim (Seoul, KR)
- P1133** **Fronto-parietal functional reorganization underlies position sense impairment at the lower limbs in early multiple sclerosis**
G. Bommarito (Genoa, IT)
- P1134** **Quantification of brain and spinal cord motor tract pathology in early relapsing remitting multiple sclerosis: association between MRI metrics, electrophysiology and clinical impairment**
R. Chouteau (Rennes, FR)
- P1135** **Patterns of regional changes in thalamic shape and volume are related to performance in specific domains in MS**
R. Capuano (Napoli, IT)
- P1136** **Quantitative ultrahigh field MRI of normal-appearing periependymal regions in patients with neuromyelitis optica and multiple sclerosis**
B. Pasquier (Basel, CH)
- P1137** **DTI alterations in the thalamic connectivity-based regions in pediatric-onset multiple sclerosis**
R. Datta (Philadelphia, US)
- P1138** **Deep-learning based automated MS T2 lesion segmentation**
L. Bracoud (Lyon, FR)
- P1139** **Neural correlates of fatigue: a voxel-based morphometric MRI study in multiple sclerosis**
C. van Antwerpen (Bristol, UK)
- P1140** **Brain MRI abnormalities in MOG-IgG and AQP4-IgG seropositive neuromyelitis optica spectrum disorder**
F. Schmidt (Berlin, DE)
- P1141** **Demyelination of the CNS sensory afferent system correlates to widespread demyelination of the brain in multiple sclerosis (MS): a TBSS study of brain DTI and median nerve SEP latency**
B. Ettrich (Leipzig, DE)
- P1142** **Microstructural damage to associative cortico-thalamic tracts play a role in the pathophysiology of fatigue in multiple sclerosis**
M. Palotai (Boston, US)

Scientific Programme

- P1143 A quantitative analysis of deep learning methods for multiple sclerosis white matter lesion segmentation**
S. Valverde (Girona, ES)
- P1144 Optic neuritis induces longtime structural changes within the visual pathway compatible with anterograde trans-synaptic degeneration**
M. Pawlitzki (Magdeburg, DE)
- P1145 Decrement of brain functional integration in multiple sclerosis is relevant to disability: a graph theory study**
S. Tommasin (Rome, IT)
- P1146 Using normalized thalamic brain volume and lesion load to identify distinct phenotypes in early relapsing multiple sclerosis patients**
R. Opfer (Hamburg, DE)
- P1147 Altered brain network modules in MS identified using magnetoencephalography: a less connected state**
E.M. Strijbis (AMSTERDAM (NH), NL)
- P1148 Instrumental, clinical, and patient reported sensorimotor correlates of spinal cord grey and total cord areas**
A.M. Alexander (San Francisco, US)
- P1149 Retinal nerve fiber layer trajectories in young and aging multiple sclerosis patients: 5-year longitudinal study**
C.B. Vaughn (Buffalo, US)
- P1150 The CROCTINO project: an international retrospective multi-center study of retinal optical coherence tomography in 501 patients with neuromyelitis optica spectrum disorders**
S. Specovius (Berlin, DE)
- P1151 Retinal nerve fiber loss in myelin-oligodendrocyte-glycoprotein antibody-positive patients: a longitudinal study**
J. Havla (München, DE)
- P1152 Ganglion cell loss as measured by optical coherence tomography in patients with radiologically isolated syndrome predicts clinical conversion to multiple sclerosis**
L. Aly (Munich, DE)
- P1153 Optical coherence tomography detects both neurodegeneration and inflammatory activity in clinically isolated syndromes suggestive of multiple sclerosis**
M. Pisa (Milan, IT)
- P1154 Optical coherence tomography in acute optic neuritis: a population-based study**
S. Specovius (Berlin, DE)
- P1155 Optical coherence tomography angiography in patients with neuromyelitis optica spectrum disorders or relapsing remitting multiple sclerosis**
F. Idiman (Izmir, TR)

Scientific Programme

- P1156** **Comparing the effect of glatiramer acetate 20 mg vs glatiramer acetate 40 mg on retinal structures in patients with relapsing remitting multiple sclerosis**
C. Santiago-Martinez (Detroit, US)
- P1157** **Temporal dynamics of intra-retinal thickness changes in clinically isolated syndrome and early multiple sclerosis**
H.G. Zimmermann (Berlin, DE)
- P1158** **Loss of functional brain network hierarchy relates to cognitive impairment in multiple sclerosis: a magnetoencephalography study**
I.M. Nauta (Amsterdam, NL)
- P1159** **Cognitive-motor interference in multiple sclerosis and its relation to cognitive and motor impairments**
P. Althoff (Berlin, DE)
- P1160** **Taking the tester out of the SDMT: A proof of concept fully automated approach to assessing processing speed in people with MS**
A. Feinstein (Toronto, CA)
- P1161** **Is the EDSS sensitive to SDMT change during relapse in MS: assessment of the CFS component score**
R.H. Benedict (Buffalo, US)
- P1162** **Association of cognitive impairment with spinal cord MRI measures in radiologically isolated syndrome**
J. Oh (Toronto, CA)
- P1163** **Rates of longitudinal cognitive decline in multiple sclerosis: characterization with a large sample and baseline clinical predictors**
T. Fuchs (Buffalo, US)
- P1164** **Employment status in individuals with multiple sclerosis: Which predictors are important in different disease subtypes?**
A. Renner (Düsseldorf, DE)
- P1165** **A systematic review and meta-analysis of the brief cognitive assessment for multiple sclerosis (BICAMS)**
D. Langdon (London, UK)
- P1166** **Confirmation and construct validity of the BICAMS short version for patient-centred care in small neurological institutions**
S.J. Baetge (Düsseldorf, DE)
- P1167** **Dysfunctional impulsivity is depending on multiple sclerosis type**
H. Joly (Nice, FR)
- P1168** **Multitasking in multiple sclerosis: an ecological approach to patient's impairment**
M.B. Eizaguirre (Buenos Aires, AR)
- P1169** **Prospective multicenter validation of CSF protein biomarkers in patients with CIS and early MS**
A. Huss (Ulm, DE)

Scientific Programme

- P1170** **Normative values of serum neurofilament light levels**
M. Khalil (Graz, AT)
- P1171** **CSF neurofilament light chain in multiple sclerosis and its subtypes: a meta-analysis of case control studies**
S.-J. Martin (Edinburgh, UK)
- P1172** **Serum GFAP associates with neurofilament light and disease severity in late multiple sclerosis**
H. Högel (Turku, FI)
- P1173** **Neurofilament light chain serum concentration reflects disease severity in patients with MOG-Ab associated disorders**
S. Mariotto (Verona, IT)
- P1174** **Strategic platform selection and validation of biomarker assays to measure serum neurofilament light and heavy chain in multiple sclerosis**
A. Sharma (Cambridge, US)
- P1175** **Growth-differentiation factor 15 (GDF-15) is increased in serum of stable multiple sclerosis patients**
M. Mehling (Basel, CH)
- P1176** **Intrathecal immunoglobulin M production is associated with future disease activity in early multiple sclerosis**
K. Ruprecht (Berlin, DE)
- P1177** **Modulation of default mode network connectivity occurs in MS patients starting fingolimod or natalizumab: a 2-year resting state functional connectivity study**
M.A. Rocca (Milan, IT)
- P1178** **Spinal cord lesions correlate with blood sNfL levels in multiple sclerosis**
F. Steffen (Mainz, DE)
- P1179** **The vasopressin surrogate copeptin correlates with ACTH and cortisol concentrations in the DexCRH-test in healthy controls, but not in MS patients**
M. Stoppe (Leipzig, DE)
- P1180** **Antibody signatures in patients with histopathologically defined multiple sclerosis patterns**
L. Stork (Göttingen, DE)
- P1181** **Predictive value of isolated CSF NfL and Chi311 measures in clinical practice**
S. Gil-Perotin (Valencia, ES)
- P1182** **Comparison of cerebrospinal fluid biomarker profile in pediatric- versus adult-onset multiple sclerosis: a Swedish registry-based study**
V.D. Karrenbauer (Stockholm, SE)
- P1183** **Cerebrospinal fluid markers indicate glial activation and neuroaxonal damage in patients with primary progressive multiple sclerosis**
A. Abdelhak (Tuebingen, DE)

Scientific Programme

- P1184 Immunophenotypic signature revealed by cytometry by time of flight (CyTOF) in patients treated with dimethyl fumarate**
A. Manning Carlson (Stanford, US)
- P1185 Markers of immunosenescence in the peripheral blood of multiple sclerosis subjects compared to healthy controls**
C. Larochelle (Montréal, CA)
- P1186 A kappa-free- light-chain oriented immune response in cerebrospinal fluid is associated with the detection of oligoclonal bands and diagnosis of multiple sclerosis**
D. Vecchio (Novara, IT)
- P1187 Prognostic potential of CSF biomarkers in clinically isolated syndrome**
A. Emersic (Ljubljana, SI)
- P1188 Lifetime cumulative DMT exposure is associated with a slower rate of brain atrophy**
C. Azevedo (Los Angeles, US)
- P1189 Long-term natalizumab treatment enhances the pathogenic signature of Th17 cells - potential implications for treatment cessation?**
C. Janoschka (Münster, DE)
- P1190 Longitudinal analysis of peripheral blood mononuclear cells in lymphopenic and non-lymphopenic relapsing-remitting multiple sclerosis (RRMS) patients treated with dimethyl fumarate**
M. Nakhaei-Nejad (Edmonton, CA)
- P1191 Impact of ozanimod on early and advanced relapsing multiple sclerosis: annualised relapse rate and MRI endpoints from two randomised, multicentre, double-blind, Phase 3 studies (SUNBEAM and RADIANCE)**
G. Comi (Milan, IT)
- P1192 Impact of immunodepleting treatment with alemtuzumab on the peripheral Treg compartment in patients with multiple sclerosis**
J. Haas (Heidelberg, DE)
- P1193 Blood glucose levels modulate dimethyl fumarate-associated neutropenia in MS patients**
M.D. Goldman (Charlottesville, US)
- P1194 Switching stable RRMS patients from natalizumab to alemtuzumab - efficacy and safety in the real world**
S. Richter (Stuttgart, DE)
- P1195 Treatment discontinuation in the Big Multiple Sclerosis Data Network: a descriptive analysis**
T. Spelman (Solna, SE)
- P1196 Incidence of confirmed macular oedema in the phase 3 program of ozanimod in relapsing multiple sclerosis**
S.A. Gross (San Diego, US)

Scientific Programme

- P1197** **Teriflunomide modulates antigen-specific immune responses in an affinity-dependent fashion by inhibiting T cell metabolism**
M. Eschborn (Münster, DE)
- P1198** **High dose vitamin D promotes experimental CNS autoimmune disease by raising T cell-excitatory calcium**
D. Häusler (Goettingen, DE)
- P1199** **Rituximab treatment in multiple sclerosis patients: experience of a single center**
P. Mulero (Barcelona, ES)
- P1200** **Alemtuzumab-induced changes in cerebrospinal fluid immune cell pattern - a prospective observational study**
S. Pfeuffer (Muenster, DE)
- P1201** **Among real-world multiple sclerosis patients that experience delayed-release dimethyl fumarate-associated lymphopenia, meaningful lymphocyte reconstitution occurs within 3 months after discontinuation of delayed-release dimethyl fumarate**
J. Rose (Salt Lake City, US)
- P1202** **Safety and feasibility of a tolerogenic dendritic cell-based treatment of multiple sclerosis (MS): a collaborative initiative comparing intranodal and intradermal cell administration in two phase I clinical trials**
B. Willekens (Edegem, BE)
- P1203** **Effect of chronic immunosuppressive therapy on the severity of MOG-Ab-associated attacks**
G. dos Passos (Oxford, UK)
- P1204** **An exploratory analysis of the efficacy of cladribine tablets 3.5mg/kg in patients with relapsing multiple sclerosis stratified according to age above and below 45 years in the CLARITY study**
G. Giovannoni (London, UK)
- P1205** **Effect of teriflunomide in subgroups defined by prior treatment: pooled analysis of the phase 3 TEMSO, TOWER, and TENERE studies**
G. Comi (Milan, IT)
- P1206** **Alemtuzumab differentially affects effector and regulatory immune cell subsets**
S. Palmeri (Genova, IT)
- P1207** **Patient and public involvement in a contemporary multiple sclerosis international trial: determining the effectiveness of early intensive versus escalation approaches for the treatment of relapsing-remitting multiple sclerosis (DELIVER-MS)**
A. Manzano (Leeds, UK)
- P1208** **Oral drugs versus interferon-beta or glatiramer acetate as first-line disease modifying therapy in relapsing-remitting multiple sclerosis**
P. Benkert (Basel, CH)

Scientific Programme

- P1209** **Transcriptional modulation induced by fingolimod treatment in relapsing remitting multiple sclerosis patients**
G. Sferruzza (Milano, IT)
- P1210** **Lymphocyte changes induces by alemtuzumab in multiple sclerosis patients**
S. Medina (Madrid, ES)
- P1211** **Low dose rituximab depletes B cells and lowers IgM in blood in MS patients: a study on possible biomarkers to predict treatment response and adverse event profile**
B. Evertsson (Stockholm, SE)
- P1212** **Switching treatments in progressive MS: how are U.S. neurologists approaching disease-modifying treatment over time?**
R. Naismith (Saint Louis, US)
- P1213** **Efficacy and safety of alemtuzumab after switching from a second line therapy**
A. Pato (Vigo, ES)
- P1214** **Dimethyl fumarate alters the composition of B cells in the blood and cerebrospinal fluid of patients with multiple sclerosis**
R.A. Høglund (Lørenskog, NO)
- P1215** **Dimethyl-fumarate and teriflunomide for multiple sclerosis in a real-life setting: a French retrospective cohort study**
S. Condé (Clermont-Ferrand, FR)
- P1216** **Unexpected highly inflammatory ms activity uncharacteristic for prior disease course in patients treated with ocrelizumab**
G. von Geldern (Seattle, US)
- P1217** **Natalizumab treatment promotes activation and differentiation of peripheral B cells in multiple sclerosis**
L. Hussein (Göttingen, DE)
- P1218** **Comparison of dimethyl fumarate as initial and secondary treatment for relapsing-remitting multiple sclerosis: a retrospective national cohort study**
M. Granqvist (Solna, SE)
- P1219** **Simvastatin effect on disability is mediated by brain atrophy but is independent of cholesterol reduction in secondary progressive multiple sclerosis**
A. Eshaghi (London, UK)
- P1220** **Therapy with anti-BMP-2/4 ameliorate relapsing experimental autoimmune encephalomyelitis via oligodendrogenesis and without immunosuppressive mechanism**
K. Mausner-Fainberg (Tel Aviv, IL)
- P1221** **Effect of MD1003 (high dose pharmaceutical grade biotin) in progressive MS: design and baseline data from the phase III SPI2 study**
B.A. Cree (San Francisco, US)

Scientific Programme

- P1222 Treatment of progressive MS with MD1003 (high dose pharmaceutical grade biotin): real-world evidence**
D. Brassat (Toulouse, FR)
- P1223 Effect of glatiramer acetate on cerebral grey matter pathology in patients with relapsing-remitting multiple sclerosis**
F. Crescenzo (Verona, IT)
- P1224 No clinical improvement in patients with low biotinidase activity levels in a cohort of progressive multiple sclerosis patients treated with high dose biotin**
B. Brochet (Bordeaux, FR)
- P1225 Effect of fumarates on human iPSCs derived neural progenitor cells and human primary neurons**
M. Nakhaei-Nejad (Edmonton, CA)
- P1226 P2X7: a target for neuroprotection and neuroinflammation in multiple sclerosis**
R. Gruber (Framingham, US)
- P1227 An integral measure of serial neurofilament light chain assessments in blood is a predictor of long-term disability progression in relapsing-remitting multiple sclerosis**
J. Kuhle (Basel, CH)
- P1228 A Swedish nationwide pharmaco-epidemiological study of the long-term safety and effectiveness of fingolimod (IMSE 2)**
A. Fält (Stockholm, SE)
- P1229 Safety of ocrelizumab in multiple sclerosis: updated analysis in patients with relapsing and primary progressive multiple sclerosis**
S. Hauser (San Francisco, US)
- P1230 Change in outcomes over time of discontinuing disease modifying therapy in patients with multiple sclerosis over age 60**
L. Hua (Las Vegas, US)
- P1231 Long-term efficacy, safety and tolerability with fingolimod treatment in patients with multiple sclerosis in real-world settings in France: three-year results of the VIRGILE study**
C. Lebrun-Frenay (Nice, FR)
- P1232 A Swedish nationwide pharmaco-epidemiological and genetic study of the long-term safety and effectiveness of natalizumab (IMSE 1)**
S. Kåggström (Stockholm, SE)
- P1233 Long-term efficacy and safety of teriflunomide: an analysis of pooled clinical trials**
M.S. Freedman (Ottawa, CA)
- P1234 A Swedish nationwide pharmaco-epidemiological and genetic study of the long-term safety and effectiveness of dimethyl fumarate (IMSE 5)**
S. Safer Demirbükler (Stockholm, SE)

Scientific Programme

- P1235** **Alemtuzumab improves clinical and MRI disease activity outcomes, including slowing of brain volume loss, in RRMS patients over 8 years: CARE-MS I follow-up (TOPAZ study)**
G. Comi (Milan, IT)
- P1236** **Safety and effectiveness of peginterferon beta-1a for patients with newly diagnosed and non-newly diagnosed relapsing multiple sclerosis: second interim analysis of the Plegridy Observational Program (POP)**
M. Salvetti (Rome, IT)
- P1237** **Assessing the safety and effectiveness of rituximab in the treatment of multiple sclerosis**
B. Vollmer (Aurora, US)
- P1238** **High persistence rate and sustained efficacy of teriflunomide in relapsing-remitting multiple sclerosis in real-world practice: a 3-year retrospective, multicenter study**
J. Villafani (Oviedo, ES)
- P1239** **Alemtuzumab outcomes over 6 Years in RRMS patients who switched from SC IFNB-1a: follow-up of CARE-MS II patients (TOPAZ study)**
C. Oreja-Guevara (Madrid, ES)
- P1240** **A Swedish nationwide pharmaco-epidemiological study of the long-term safety and effectiveness of alemtuzumab (IMSE 3)**
A. Fält (Stockholm, SE)
- P1241** **Assessing the long-term impact of disease modifying therapies: preliminary results from the Comparing Australia and New Zealand MS Populations (COMPANZ) Study**
S. Claflin (Hobart, AU)
- P1242** **Safety and effectiveness of less frequent dosing of natalizumab in relapsing remitting multiple sclerosis (RRMS) patients in a dedicated MS center in Greece - an eleven years experience**
C. Karageorgiou (Athens, GR)
- P1243** **False positive B viral hepatitis testing in MS patients receiving high dose of biotin**
V. Pourcher (Paris, FR)
- P1244** **Effect of extended dosing of natalizumab on VLA-4 saturation**
R. Johanson (Philadelphia, US)
- P1245** **MS-PML.org, an e-learning resource for physicians to facilitate early recognition of progressive multifocal leukoencephalopathy in the setting of MS: analysis and interpretation of usage data**
F. Barkhof (London, UK)
- P1246** **Evaluating the tolerability and safety profile of switching from rituximab to ocrelizumab: infusion related reactions in relapsing forms of multiple sclerosis**
T. Vollmer (Aurora, US)

Scientific Programme

- P1247** **Progressive multifocal leukoencephalopathy in extended interval dosing of natalizumab: four cases from the Italian PML cohort**
C. Scarpazza (Brescia, IT)
- P1248** **T-cell mediated secondary autoimmunity following alemtuzumab treatment: 2 cases of vitiligo**
T. Ruck (Münster, DE)
- P1249** **Results from an Italian Consensus Conference on prevention and management of infections in multiple sclerosis patients treated with biological and non biological disease modifying drugs**
L. Moiola (Milan, IT)
- P1250** **Young and naïve MS patients have a lower risk of adverse events during alemtuzumab infusion**
M. Puthenparampil (Padova, IT)
- P1251** **Patients treated with delayed-release dimethyl fumarate have no increased risk of herpes zoster based on clinical trial and post-marketing report data**
J. Hanna (Cambridge, US)
- P1252** **Defining extracellular RNA (exRNA) expression as an indicator for natalizumab treatment response and PML risk assessment in multiple sclerosis**
M. Meira (Basel, CH)
- P1253** **Incidence of pregnancy in women with multiple sclerosis treated with teriflunomide in France**
E. Leray (Rennes, FR)
- P1254** **Safety and efficacy of delayed-release dimethyl fumarate in multiple sclerosis patients treated in routine medical practice: interim analysis of ESTEEM**
N.J. Everage (Cambridge, US)
- P1255** **Incidence of PML in Finland in 2004-2014**
J. Sipilä (Joensuu, FI)
- P1256** **CD62L and JCV index for PML risk management in treated MS patients**
B. Pignolet (Toulouse, FR)
- P1257** **Reduction of infusion related reactions during ocrelizumab infusions in a comprehensive multiple sclerosis Care Center**
K. Edwards (Latham, US)
- P1258** **Improvements across functional systems are maintained regardless of early vs late confirmed disability improvement: CARE-MS 6-year follow-up**
P. Vermersch (Lille, FR)
- P1259** **Fluorine-19 magnetic resonance imaging as a method for the individualized theranostic of fluorine labelled drugs in neuroinflammation**
C. Prinz (Berlin, DE)

Scientific Programme

- P1260** **Dimethyl fumarate-induced lymphocyte drop at six months predicts short-term disease activity in multiple sclerosis: an independent, prospective, post-marketing evaluation**
C. Tortorella (Rome, IT)
- P1261** **Treatment effects of fampridine on ambulation and upper extremity function in patients with multiple sclerosis from a real-world evidence cohort**
C.E. van Munster (Amsterdam, NL)
- P1262** **Peginterferon beta-1a reduces the number of black holes evolved from acute MRI lesions in newly diagnosed patients with relapsing-remitting multiple sclerosis: a post hoc analysis ADVANCE**
D.L. Arnold (Montreal, CA)
- P1263** **Gene expression profiles of proteins involved in cladribine metabolism and their possible correlation with Epstein-Barr virus variants**
R. Mechelli (Rome, IT)
- P1264** **A prospective, non-interventional study in US patients with relapsing-remitting multiple sclerosis treated with alemtuzumab in routine clinical practice (PROMiS): interim results on patient reported outcomes**
B.O. Khatri (Milwaukee, US)
- P1265** **A systematic review of real-world adherence and persistence of once- or twice-daily oral disease-modifying drugs (dimethyl fumarate, fingolimod, and teriflunomide) in multiple sclerosis**
J. Nicholas (Columbus, US)
- P1266** **Cortical modulatory effect of Fampridine in patients with multiple sclerosis and gait impairment**
N. Riachi (Beirut, LB)
- P1267** **Standing up in people with progressive multiple sclerosis (SUMS): a multi-centre randomised controlled trial evaluating a home-based standing frame programme**
J. Freeman (Plymouth, UK)
- P1268** **High frequency repetitive transcranial magnetic stimulation (rTMS) can improve balance and white matter integrity in patients with relapsing remitting multiple sclerosis. A long term follow up study**
H. Shehata (Cairo, EG)
- P1269** **Resting-state functional connectivity increase after upper-limb task-oriented motor rehabilitation in progressive MS**
G. Boffa (Genova, IT)
- P1270** **Effects of Kinect-based virtual reality exercises on balance and risk of falling in people with multiple sclerosis: a pilot double blinded randomized control trial**
F. Molhemi (Ahvaz, IR)
- P1271** **Balance Right in Multiple Sclerosis (BRiMS): preliminary results of a randomised controlled feasibility trial**
J. Freeman (Plymouth, UK)

Scientific Programme

- P1272 Patient and caregiver involvement in formulation of guideline questions: findings from the EAN guideline on palliative care of people with severe multiple sclerosis**
A. Solari (Milan, IT)
- P1273 Intensive exercising over four weeks improved subjective and objective sleep, depression and fatigue among patients with multiple sclerosis (MS)**
D. Sadeghi Bahmani (Basel, CH)
- P1274 “Keep going!” Symptoms of depression, sleep disturbances, fatigue and anxiety improved 12 weeks after exercising and active leisure time activity, but decreased further 16 weeks later - evidence for a continuous exercising program**
D. Sadeghi Bahmani (Basel, CH)
- P1275 Glatiramer acetate slows disability progression - final 10-year results from UK Risk Sharing Scheme**
S. Al-Izki (Castleford, UK)
- P1276 Life-threatening vitamin D intoxication due to intake of ultra-high doses in multiple sclerosis: a case report**
J. Feige (Salzburg, AT)
- P1277 Action observation training modulates dynamic functional connectivity in patients with multiple sclerosis**
C. Cordani (Milan, IT)
- P1278 A double-blind placebo-controlled study of satralizumab (SA237), a recycling anti-IL-6 receptor monoclonal antibody, as monotherapy for patients with neuromyelitis optica spectrum disorder (NMOSD)**
A. Traboulsee (Vancouver, CA)
- P1279 The influence of decision fatigue on therapeutic decisions in multiple sclerosis care**
G. Saposnik (Toronto, CA)
- P1280 The impact of fear of falling on leisure-time physical activity in multiple sclerosis**
A. Kalron (Tel-Aviv, IL)
- P1281 Pregnancy reports and outcomes from multiple sclerosis patients primarily treated with peginterferon beta-1a and delayed-release dimethyl fumarate in Germany**
G. Niemczyk (Ismaning, DE)
- P1282 PR Fampridine improves patient reported upper limb function in people with MS measured by ABILHAND**
J. Johnson (London, UK)
- P1283 Evidence based patient information and smartphone based activity feedback does not enhance physical activity in PPMS in a randomized controlled trial over three months**
N.N. Nasser (Hamburg, DE)

Scientific Programme

- P1284 A meta-review of systematic reviews on psychosocial adjustment to multiple sclerosis diagnosis**
G. Topcu (Nottingham, UK)
- P1285 Impact of shared decision making on improving patient-clinician interactions and ms quality measures: a pilot study**
J.D. Bowen (SEATTLE, US)
- P1286 Healthcare resource use and disease progression among commercially insured patients with multiple sclerosis: a comparison of continuous and intermittent users of disease modifying therapy over five years (2012-2016)**
L. Amezcua (Los Angeles, US)
- P1287 Risk of falls and gait: effectiveness of a physiotherapy circuit training on the walk function, quality of life and risk of falls in a multiple sclerosis' patients**
A. Granja Domínguez (sevilla, ES)
- P1288 Comparing patient and healthcare professional perceptions on multiple sclerosis management and care - where do their priorities differ? Results from a qualitative survey**
S. Schippling (Zurich, CH)
- P1289 Core muscles' contraction and rest size and relationship with postural sway in fully ambulatory multiple sclerosis patients: an ultrasound imaging study**
Y. Salci (ANKARA, TR)
- P1290 Quantitative neuroimaging in multiple sclerosis (MS): which biomarker is the most reliable in the evaluation of MS-induced atrophy?**
E. Makras (athens, GR)
- P1740 Natalizumab reduced serum levels of neurofilament light chain in secondary progressive multiple sclerosis patients from the phase 3 ASCEND study**
R. Kapoor (London, UK)
- P1741 Serum neurofilament light chain levels and cross-sectional and longitudinal deep gray matter changes: 5-year longitudinal MRI study**
J. Kuhle (Basel, CH)
- P1742 CD8 T cell-mediated endotheliopathy is a targetable mechanism of neuro-inflammation, as documented in Susac syndrome**
C.C. Gross (Münster, DE)
- P1743 BCAS1 identifies active cortical remyelination in early and late stage multiple sclerosis**
F. van der Meer (Göttingen, DE)
- P1744 Pathology of anti-MOG antibody-associated demyelination**
T. Maragkou (Goettingen, DE)
- P1745 Accelerated cord atrophy precedes conversion to secondary progressive disease in relapsing multiple sclerosis**
A. Bischof (San Francisco, US)

Scientific Programme

- P1746 Did risk stratification modify the incidence of PML in natalizumab-treated MS patients in France?**
S. Vukusic (Lyon, FR)
- P1747 Alemtuzumab reduces serum neurofilament light chain levels in relapsing-remitting multiple sclerosis patients from the CARE-MS I study**
J. Kuhle (Basel, CH)
- P1748 Long-term clinical outcomes in patients with CIS treated with interferon beta-1b: first results from BENEFIT 15**
L. Kappos (Basel, CH)
- P1749 Cortical thinning in multiple sclerosis: a 6-year longitudinal study**
C. Tsagkas (Basel, CH)
- P1750 Serum neurofilament light chain levels and cortical pathology in multiple sclerosis: 5-year longitudinal study**
R. Zivadinov (Buffalo, US)
- P1751 Genetic determinants of the intrathecal humoral immune response in multiple sclerosis**
C. Gasperi (Munich, DE)
- P1752 Peripapillary and parafoveal vascular network assessment by optical coherence tomography angiography in Aquaporin-4 antibody-positive neuromyelitis optica spectrum disorders**
C. Quan (Shanghai, CN)
- P1753 Pregnancy and infant outcomes with interferon beta: data from the European Interferon Beta Pregnancy Registry and Population Based Registries in Finland and Sweden**
K. Hellwig (Bochum, DE)
- P1754 Microglial-dependent neurodegeneration in multiple sclerosis is fueled by pHERV-W envelope protein**
D. Kremer (Düsseldorf, DE)
- P1755 How does anti-IL-6 receptor monoclonal antibody tocilizumab treatment ameliorate neuromyelitis optica?**
T. Matsuoka (Tokyo, JP)
- P1756 Cognitive rehabilitation for attention and memory in people with multiple sclerosis: a randomised controlled trial**
R. das Nair (Nottingham, UK)
- P1757 High serum concentrations of vitamin D may protect against multiple sclerosis**
M. Biström (Umeå, SE)
- P1758 The role of the aryl hydrocarbon receptor in glial cells during demyelination**
S.N. Schmid (Göttingen, DE)

Scientific Programme

- P1759** **Serum neurofilament light chain and glial fibrillary acid protein analysis in patients with multiple sclerosis: a clue to distinguish inflammation and neurodegeneration?**
X. Ayrignac (Montreal, CA)
- P1760** **IgA B cells as novel players along the gut-brain axis in multiple sclerosis**
A.-K. Pröbstel (San Francisco, US)
- P1761** **Fronto-subcortical circuits abnormalities in multiple sclerosis patients with cognitive impairment**
D. Meng (Nottingham, UK)
- P1762** **Synaptic protection in EAE gray matter with ibudilast and URM-099**
M.J. Bellizzi (Rochester, US)
- P1763** **Behavior of skin-derived myelin-producing human oligodendrocytes (healthy controls vs MS) after transplantation in the central nervous system**
S. Mozafari (Paris, FR)
- P1764** **Episode of encephalitis is important clinical component of MOG antibody associated demyelination: a single center cohort study in Shanghai, China**
C. Quan (Shanghai, CN)
- P1765** **Selective inhibition of hyaluronidase activity reverses toll-like receptor mediated inhibition of myelin gene transcription and promotes functional remyelination in demyelinating lesions**
L.S. Sherman (Beaverton, US)
- P1766** **Pilot study: Profiling of individual responses to alemtuzumab immune reconstitution treatment by high frequency serum neurofilament light assessment in highly active RRMS patients up to 102 months can pre-identify clinical and MRI disease activity**
K. Akgün (Dresden, DE)
- P1767** **Anti-JCV antibody serology is associated with CSF cell counts in multiple sclerosis patients with and without natalizumab treatment**
T. Schneider-Hohendorf (Muenster, DE)
- P1768** **A phase IIb double blind trial to investigate the efficacy and the optimal way of administration of mesenchymal stem cells (MSC) in active and progressive multiple sclerosis (MS)**
P. Petrou (Jerusalem, IL)
- P1769** **The relationship of microglial activation and multiple sclerosis-associated fatigue: a [F-18]PBR06 PET study**
T. Singhal (Boston, US)
- P1770** **Extended interval dosing of natalizumab shows comparable efficacy to standard interval dosing starting from the second year of treatment**
S. Ruggieri (Rome, IT)
- P1771** **Pregnancy outcomes from the global pharmacovigilance database on interferon beta-1b exposure**
A. Adamo (São Paulo, BR)

Scientific Programme

- P1772** **Single-cell analysis of intrathecal B cells in multiple sclerosis**
J. Polak (Oslo, NO)
- P1773** **An hexameric soluble form of endogenous retroviral protein is specifically extracted from demyelinating MS lesions**
S. Amor (Amsterdam, NL)
- P1774** **Pregnancy and multiple sclerosis in the DMT era: insights from a cohort study in Western Austria**
G. Bsteh (Innsbruck, AT)
- P1775** **Risk estimates of progressive multifocal leukoencephalopathy related to fingolimod**
D. Ontaneda (Cleveland, US)
- P1776** **Molecular engineering of Tregs expressing recombinant TCR: study of their therapeutic effects in an animal model of multiple sclerosis**
M. Malviya (Toulouse, FR)
- P1777** **Glatiramer Acetate Depot (Extended-Release) phase IIa study in patients with relapsing remitting multiple sclerosis: safety, tolerability and efficacy (no evidence of disease activity) two-years analysis**
S. Flechter (Zerifin, IL)
- P1778** **Accumulation of 8,9-unsaturated sterols drives oligodendrocyte formation and remyelination**
D. Adams (Cleveland, US)
- P1779** **Worsening symptoms in secondary progressive multiple sclerosis is linked to increased eomes+ Th cells**
B. Raveney (Kodaira, Tokyo, JP)
- P1780** **Interim data from the Hungarian Fingolimod Registry (CFTY720DHU01)**
K. Bencsik (Szeged, HU)
- P1781** **Vitamin D supplementation in multiple sclerosis: primary efficacy endpoint and safety of a randomized, controlled, double-blind phase II trial (EVIDIMS)**
P. Koduah (Berlin, DE)
- P1782** **Markers of oxidative stress - correlation with vitamin D3 and smoking in multiple sclerosis (MS) patients**
D. Obradovic (Belgrade, RS)
- P1783** **Combined triaxial accelerometric sensors and ultrasonography-guided botulinum toxin type-A injection can improve outcome in upper extremities tremor in multiple sclerosis**
H. Shehata (Cairo, EG)
- P1784** **Black race is an independent risk factor for disability in neuromyelitis optica spectrum disorder**
L. Amezcua (Los Angeles, US)

Scientific Programme

P1785	A multiple sclerosis CD4+ T cell methylation quantitative trait loci (meQTL) reference map: a novel data resource identifies the proximal and distal functional consequences of 19 MS susceptibility loci P. De Jager (New York, US)
P1786	The absorption and activity of a novel form of biotin, JDS-MB-001, in a hippocampal demyelination animal model J. Komorowski (Purchase, US)
P1787	Investigating brain plasticity underlying the early stages of functional recovery in MS E. Patitucci (Cardiff, UK)
P1788	GlucoCEST MRI of blood brain barrier disruption in multiple sclerosis - first human experiments and initial results X. Xu (Baltimore, US)
P1789	Identification of pathogenic antibodies that may trigger inflammatory-thrombotic mechanisms in multiple sclerosis M. Hadjiagapiou (Nicosia, CY)
P1790	Expansion of Tregs mediates Murine (m) aCD52 mAb suppression of experimental autoimmune encephalomyelitis (EAE) N. Kiapoor (Chapel Hill, US)
P1791	Plasma-borne extracellular vesicles in multiple sclerosis - where did they come from? K. Groen (Callaghan, AU)
P1792	High concentrations of endothelin-1 in the cerebrospinal fluid can predict poor visual recovery from optic neuritis in patients with multiple sclerosis: results from a pilot study M. Castellazzi (Ferrara, IT)
P1793	Blood neurofilament light chain levels are elevated in paediatric patients with multiple sclerosis and reduced under disease-modifying treatment M.-C. Reinert (Göttingen, DE)
P1794	Neuro-inflammation Down Under: clinical characteristics of an Australian cohort of autoimmune encephalitides R. Wesselingh (Melbourne, AU)
P1795	Double cohort study observed neuropreservation in retinal layers over 5 years after alemtuzumab treatment in relapsing-remitting multiple sclerosis patients J.K. Chan (Vancouver, CA)
P1796	Machine learning outperforms linear regression for predicting disability progression in SPMS M.T.K. Law (Vancouver, CA)
12:15 - 12:25	P1797 Results from a phase II proof of concept trial of VSN16R to treat multiple sclerosis related spasticity R. Farrell (London, UK)

Scientific Programme

13:00 - 14:00		Satellite Symposium, Hall A Satellite Symposium 11: Switching MS treatments: patient trajectory, prior response and real world evidence to inform decision-making Supported by Sanofi Genzyme Chairs P.K. Coyle (Stony Brook, US)
13:00 - 13:05	311	Welcome and introduction P.K. Coyle (Stony Brook, US)
13:05 - 13:30	312	Informing switch decisions: evaluating patient trajectory and defining optimal treatment response G. Comi (Milan, IT)
13:30 - 13:55	313	Informed switch decisions: clinical trial and real-world evidence T. Ziemssen (Dresden, DE)
13:55 - 14:00	314	Closing remarks P.K. Coyle (Stony Brook, US)
13:00 - 14:00		Satellite Symposium, Hall B Satellite Symposium 12: Data • Analysis • Technology • Application making it real Supported by Biogen Chairs X. Montalban (Toronto, CA)
13:00 - 13:10	315	Clinical decisions: from clinical trials to the real world X. Montalban (Toronto, CA)
13:10 - 13:25	316	Indirect comparisons with real world data: from data to evidence M.P. Sormani (Genoa, IT)
13:25 - 13:55	317	MRI quantification in MS PATHS: from 'proof-of-concept' to 'point-of-care' B. Tackenberg (Marburg, DE) H.H. Kitzler (Dresden, DE)
13:55 - 14:00	319	Closing remarks X. Montalban (Toronto, CA)

Scientific Programme

		Scientific Session, Hall A
14:15 - 15:30		Scientific Session 17: Late Breaking News
		Chairs
		L. Leocani (Milan, IT)
		C. Farina (Milan, IT)
14:15 - 14:27	320	Absence of Epstein-Barr virus seronegativity in a large cohort of patients with early multiple sclerosis
		K. Ruprecht (Berlin, DE)
14:27 - 14:39	321	Vitamin D, smoking, EBV and long-term cognitive performance among CIS patients: 11-year follow-up of BENEFIT
		M. Cortese (Boston, US)
14:39 - 14:51	322	Primary analysis of a randomised, placebo-controlled, phase 2 study of the Bruton's tyrosine kinase inhibitor evobrutinib (M2951) in patients with relapsing multiple sclerosis
		X. Montalban (Toronto, CA)
14:51 - 15:03	323	A double-blind placebo-controlled study of satralizumab (SA237), a recycling anti-IL-6 receptor monoclonal antibody, as add-on therapy for neuromyelitis optica spectrum disorder (NMOSD)
		T. Yamamura (Tokyo, JP)
15:03 - 15:15	324	MS-SMART Trial: a multi-arm phase 2b randomised, double blind, parallel group, placebo-controlled clinical trial comparing the efficacy of three neuroprotective drugs in secondary progressive multiple sclerosis [NCT01910259]
		J. Chataway (London, UK)
		Plenary Session, Hall A
16:00 - 18:00		Plenary Session 2 - ECTRIMS Awards, ECTRIMS Honorary Members, Confavreux Lecture and ECTRIMS 2018 Highlights
		Chairs
		R. Hohlfeld (Munich, DE)
		B. Hemmer (Munich, DE)
16:00 - 16:45	325	Presentation of selected poster awards, awards for best oral presentations by young researchers, the MSIF award as well announcement of ECTRIMS Honorary Members
16:45 - 17:15	326	Neurobiology of multiple sclerosis: from basic science to clinical translation
		C. Lubetzki (Paris, FR)
17:15 - 17:35	327	Clinical highlights
		J. Palace (Oxford, UK)
		M. Stangel (Hannover, DE)

Scientific Programme

17:35 - 17:55	328	Scientific highlights S. Zamvil (San Francisco, US) L. Klotz (Münster, DE)
17:55 - 18:00	329	Welcome to Stockholm J. Hillert (Stockholm, SE)