

The UCLA Comprehensive Stroke Center and Cerebrovascular Program present the

XXIV
24TH ANNUAL

UCLA

BRAIN ATTACK! '19

Symposium on State-of-the-Art Stroke Management

SATURDAY · APRIL 27, 2019

UCLA Carnesale Commons | 251 Charles E. Young Drive, West · Los Angeles, California 90095

UCLA COURSE DIRECTOR

Sidney Starkman, MD

Director, Emergency Neurology, Departments of Emergency Medicine and Neurology

UCLA FACULTY PLANNING COMMITTEE

Geoffrey P. Colby, MD, PhD

Director, Division of Cerebrovascular Neurosurgery, Department of Neurosurgery

Bruce H. Dobkin, MD

Director, Neurological Rehabilitation and Research Program, Department of Neurology

Gary R. Duckwiler, MD

Director, Division of Interventional Neuroradiology, Department of Radiology

Jeffrey L. Saver, MD

Director, Stroke Neurology, Department of Neurology

Paul M. Vespa, MD

Director, Neurocritical Care, Departments of Neurosurgery and Neurology

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Saturday, April 27, 2019

7:30AM Registration and Continental Breakfast

8:00 **Welcome** - *S. Thomas Carmichael, MD, PhD*

8:05 **Comprehensive Management of Aneurysmal Subarachnoid Hemorrhage**
Geoffrey P. Colby, MD, PhD

8:35 **Treatments to Enhance Collaterals: Old and New Tricks**
David S. Liebeskind, MD

9:05 **The Changing Landscape in Stroke Prevention in Atrial Fibrillation: Medical and Device Options**
Noel G. Boyle, MD, PhD

9:35 Break

9:55 **Holes in the Heart, Holes in the Brain: Managing Patent Foramen Ovale-Associated Stroke**
Jamil A. Aboulhosen, MD

10:25 **Comprehensive Medical Prevention of Atherosclerotic Stroke, Including PCSK9 Inhibitors and EPA**
Neal M. Rao, MD

10:55 **Neuroimaging of Salvageable Brain: Evaluating Core, Penumbra, and Collaterals**
Bryan Y. Yoo, MD

11:25 **Pre-Hospital Diagnosis and Treatment of Stroke in the First Minutes after Onset**
May Nour, MD, PhD

11:55 Lunch

1:15PM **Endovascular Thrombectomy – Expanding Indications and Treatment Approaches**
Reza Jahan, MD

1:45 **Care of the Post-Thrombectomy Patient, Outcomes Good and Bad (Hemicraniectomy)**
Latisha K. Sharma, MD

2:15 **Intracerebral Hemorrhage: Advances in Minimally Invasive Surgical Treatment**
Paul M. Vespa, MD

2:45 **Understanding Current Management of Arteriovenous Malformations and Cerebral Venous Thrombosis**
Gary R. Duckwiler, MD

3:15 Break

3:30 **Frontiers of Neurorestoration: Stem Cells, Neuromodulation, Brain-Machine Interfaces, and Virtual Reality**
Bruce H. Dobkin, MD

4:00 **Vascular Cognitive Impairment and Vascular Dementia**
Lucas Restrepo, MD, PhD

4:30 **The Future Is Now: Stroke Systems of Care in the New Therapeutic Era**
Jeffrey L. Saver, MD

5:00 Adjourn

COURSE OBJECTIVES

At the conclusion of this program participants should be able to:

- Utilize recent advances in the treatment of atrial fibrillation and in the treatment of atherosclerosis
- Summarize recent developments in endovascular treatment of acute ischemic stroke and management of the post-thrombectomy patient
- Employ recent developments in management of intracerebral hemorrhage and intracranial aneurysmal hemorrhage
- Apply methods to manage arteriovenous malformations and cerebral venous thrombosis

TARGET AUDIENCE

Neurologists, Neurosurgeons, Interventional Neuroradiologists, Emergency Physicians, Family Practice Physicians, Internists, and other health care professionals who want to enhance their knowledge of the management of patients with cerebrovascular diseases.

FACULTY

Jamil A. Aboulhosn, MD

Director, Ahmanson/UCLA Adult Congenital Heart Center
Associate Professor of Clinical Medicine*
Divisions of Cardiology and Pediatric Cardiology

Noel G. Boyle, MD, PhD

Professor of Clinical Medicine*
UCLA Cardiac Arrhythmia Center

S. Thomas Carmichael, MD, PhD

Frances Stark Chair in Neurology and Professor of Neurology*

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Gary R. Duckwiler, MD

Professor and Chief, Division of Interventional Neuroradiology*

Reza Jahan, MD

Professor and Director of Academic Affairs*
Division of Interventional Neuroradiology

David S. Liebeskind, MD

Professor of Neurology*
Director, Neurovascular Imaging Research Core
Director, Outpatient Stroke and Neurovascular Programs
Associate Neurology Director,
UCLA Comprehensive Stroke Center

May Nour, MD, PhD

Medical Director, UCLA Mobile Stroke Rescue Program
Assistant Professor of Neurology and Radiology*
UCLA Comprehensive Stroke Center and
Division of Interventional Neuroradiology

Neal M. Rao, MD

Assistant Professor of Neurology*
Director, Olive View-UCLA Medical Center Stroke Program

Lucas Restrepo, MD, PhD

Assistant Professor of Neurology*

Jeffrey L. Saver, MD

Professor and Senior Associate Vice-Chair of Neurology*
Director, UCLA Comprehensive Stroke Center

Latisha K. Sharma, MD

Associate Clinical Professor of Neurology*
Director, Stroke Center Medical Quality
Director, UCLA TeleStroke Program
Associate Director, UCLA Vascular Neurology
Residency Program

Paul M. Vespa, MD

Professor of Neurology and Neurosurgery*
Assistant Dean of Critical Care Medicine (Research)
Gary L. Brinderson Family Chair in Neurocritical Care

Bryan Y. Yoo, MD

Assistant Clinical Professor of Radiology*
Division of Neuroradiology

*David Geffen School of Medicine at UCLA

ISCHEMIC STROKE:

Medical & Endovascular Emergency Treatment, Prevention, and Rehabilitation

The UCLA Comprehensive Stroke Center presents its annual Brain Attack symposium to review the practical, clinical aspects of stroke prevention, diagnosis, and treatment. The course will cover stroke risk factors, diagnostic testing, and medical and interventional therapy.

Intravenous thrombolysis and neuroendovascular thrombectomy are highly effective techniques for treatment of acute ischemic stroke. The results of recent studies indicate that these reperfusion therapies are beneficial up to 4.5-6 hours after symptom onset in most patients, and up to 24 hours in imaging-selected patients. A highly coordinated team approach is required to provide these treatments safely and effectively.

Neuroimaging techniques are playing an increasingly important role in the evaluation of stroke patients. Faculty will provide an in-depth discussion of innovative MR and CT techniques.

THE UCLA COMPREHENSIVE STROKE CENTER

The UCLA Comprehensive Stroke Center maintains a comprehensive treatment and clinical trials program for patients with cerebrovascular disorders. The UCLA Comprehensive Stroke Center – the first Joint Commission certified stroke center in Los Angeles County, provides multidisciplinary care for patients with stroke and kindred disorders including prevention, acute brain rescue, interventional neuroradiological and surgical therapy, and multimodal rehabilitation. The UCLA Comprehensive Stroke Center's treatment approach includes emergency physicians, stroke neurologists, vascular neurosurgeons, vascular surgeons, diagnostic and interventional neuroradiologists, and rehabilitation physicians.

Acute Treatment

For patients with new onset stroke symptoms, a "Brain Attack" rapid care program provides:

- immediate evaluation by emergency physicians and neurologists
- CT / MRI scan within minutes of emergency department arrival
- prompt neurovascular intensive/intermediate level care
- trials of novel therapies for ischemic and hemorrhagic stroke and acute interventional and surgical therapies.

Stroke in Children and Young Adults

Experts in pediatric neurology, neurosurgery, interventional and diagnostic neuroradiology, and stroke neurology work together at the UCLA Comprehensive Stroke Center to provide comprehensive evaluation and treatment for pediatric and young adult patients with cerebrovascular disorders including Moyamoya syndrome, sickle cell anemia, hyper-coagulable states, cardioembolic stroke, arteriovenous malformations, and aneurysms.

Rehabilitation

The California Rehabilitation Institute is a 138 bed free-standing acute rehabilitation hospital in Century City that is a joint venture with UCLA and Cedars-Sinai, and provides state-of-the-art care to maximize recovery for patients with stroke.

Carotid Endarterectomy

Microneurosurgical endarterectomy, with intraoperative brain monitoring, is available for asymptomatic and symptomatic carotid artery stenosis.

Reperfusion

For patients eligible to receive intravenous tPA, thrombolysis is rapidly administered. In addition, neurointerventionalist teams are available around the clock to perform emergency endovascular neurothrombectomy procedures.

Carotid and Intracranial Angioplasty and Stenting

UCLA provides angioplasty and stenting for selected patients with intracranial and extracranial carotid or vertebrobasilar stenoses.

NIH Studies

The UCLA Comprehensive Stroke Center is a co-lead center for the NIH Los Angeles-Southern California StrokeNet (LASC StrokeNet), one of twenty-five regional networks in the country for performing studies of stroke prevention, acute treatment, and recovery.

Prevention

The Stroke Clinic provides comprehensive evaluation and treatment recommendations for individuals at increased risk for ischemic and hemorrhagic stroke, including those with atrial fibrillation, carotid artery stenosis, transient ischemic attacks, and newly diagnosed unruptured aneurysms or vascular malformations.

One Call, Immediate Accept

NEUROCRITICAL CARE RAPID TRANSFER

310-825-0909 - Press 1

Stroke Neurology 310-794-6379

Vascular Neurosurgery 310-825-5111

Geoffrey Colby, MD, PhD; Anthony Wang, MD

Interventional Neuroradiology 310-267-8761

gduckwiler@mednet.ucla.edu

Emergency Neurology 310-794-0600

UCLA Comprehensive Stroke Center: www.uclahealth.org/stroke

UCLA TeleStroke: www.uclahealth.org/telestroke

UCLA Interventional Neuroradiology: www.aneurysm-stroke.com

UCLA Cerebrovascular Program: www.uclahealth.org/cerebrovascular

California Rehabilitation Institute: www.californiarehabinstitute.com

Cerebral Aneurysms, Intracerebral Hemorrhage, Arteriovenous Malformations, and Cerebral Venous Thrombosis

Tremendous strides have been made in the management of complex vascular lesions of the brain and spinal cord. This symposium will provide a review of the basic principles of clinical and interventional management of cerebral aneurysms and subarachnoid hemorrhage. Developments in microsurgical and endovascular techniques will be discussed. Also, intracerebral hemorrhage, arteriovenous malformations, and cerebral venous thrombosis will be reviewed.

THE UCLA CEREBROVASCULAR PROGRAM

The UCLA Cerebrovascular Program has developed management protocols for the diagnosis and treatment of cerebrovascular disorders which incorporate diagnostic and interventional neuroradiology, microneurosurgery, stereotactic radiosurgery, neuroanesthesiology, neurocritical care, and intensive medical management. The members of the UCLA Cerebrovascular team have worked cooperatively for three decades with all of the management components available on-site at UCLA, allowing for efficient coordination of the various techniques.

Neurovascular Disorders Treated at UCLA:

Intracranial Aneurysms

Ruptured intracranial aneurysms may be treated either surgically or by endovascular technique. Postoperatively, transcranial Doppler and cerebral blood flow studies are available to assess for the development of vasospasm. Severe, medically refractory vasospasm is treated using balloon dilation angioplasty and/or pharmacologic intra-arterial infusion, performed by the interventional neuroradiology team. Giant and complex aneurysms often require treatment using new endovascular techniques of flow diversion or extracranial-intracranial arterial bypass.

Arteriovenous Malformations (AVMs)

The Neurovascular Program has extensive experience in the management of large and complex AVMs in children and adults, which are generally treated with embolization followed by microneurosurgical resection. Functional brain mapping for surgical planning is a critical component of management of AVMs. Deep and critically located AVMs are treated with stereotactic radiosurgery which is combined with embolization in larger lesions. Dural arteriovenous malformations are usually treated definitively by embolization alone, but in some complex cases, surgery or combined techniques are necessary. Spinal AVMs are treated by microsurgical excision, endovascular therapy, or most commonly, a combination of the two techniques. UCLA is also a designated HHT (hereditary hemorrhagic telangiectasia) Center of Excellence, and provides treatment for the whole range of lesions, including brain AVMs, that are seen in families.

Cavernous Angiomas of the Brain, Brain Stem, and Spinal Cord

Cavernous angiomas are generally treated by microsurgical excision when they have caused significant symptoms. Lesions of the brain stem and spinal cord can now be treated successfully using microneurosurgical techniques, when appropriate, usually in combination with intraoperative electrophysiologic monitoring.

Vein of Galen Malformations

Transarterial and transvenous endovascular approaches are employed to reduce flow through the fistula, combined in some cases with neurosurgical treatment.

Intracranial Arterial Stenosis

Stroke due to narrowing of the brain arteries carries one of the highest rates of recurrent stroke, as much as 25 percent. Treatment of narrowing of the intracranial arteries is performed by a multidisciplinary team of experts in both medical management and novel endovascular and surgical revascularization techniques, including angioplasty, stenting, bypass, and indirect revascularization surgeries.

UCLA Comprehensive Stroke Center website: www.uclahealth.org/stroke

Stroke Neurology 310-794-6379

Interventional Neuroradiology 310-267-8761

Neurocritical Care 310-267-9448

Emergency Neurology 310-794-0600

UCLA Medical Center Facilities:

Stroke Unit

UCLA's Acute Stroke Unit, one of the first in the nation, offers comprehensive, cutting edge acute inpatient care for patients suffering from cerebral infarction, hemorrhage or other cerebrovascular diseases.

UCLA Neurocritical Care

The UCLA Neurocritical Care program is an internationally acclaimed center of excellence in patient care, training, and research. The 24-bed Singleton Neuro-ICU features numerous state-of-the-art technologies including continuous EEG monitoring, cerebral microdialysis, brain oximetry, transcranial doppler, the world's first ICU Robot (InTouch Health), and a comprehensive ICU Supercomputing System.

California Rehabilitation Institute

The California Rehabilitation Institute is the largest acute rehabilitation hospital in the western US and provides care during the initial time of complex medical and neurological recovery post-stroke with the goal of reducing the impairments and disability associated with stroke and maximizing recovery.

UCLA Clinical Image Processing Laboratory

The laboratory is equipped with a full spectrum of 3D, image fusion, and post-processing software for cerebrovascular structural and perfusion study analysis.

Neurosurgical Operating Rooms

The state-of-the-art neurosurgical operating rooms at UCLA, which accommodate more than 1,200 cases annually, include video systems for viewing microsurgical procedures, electrophysiologic equipment for brain monitoring, intraoperative angiography, and a frameless stereotactic imaging workstation (BrainLAB).

UCLA Cerebral Blood Flow Laboratory (Clinical)

This facility provides comprehensive transcranial Doppler evaluations and cerebral blood flow testing on inpatients and outpatients.

Interventional Neuroradiology Suites

The interventional angiography suites are equipped with the latest digital equipment, including 3-D rotational angiography designated for the performance of endovascular procedures. More than 400 such procedures are performed annually at UCLA.

Stereotactic Radiosurgery

The stereotactic radiosurgery section at UCLA utilizes state-of-the-art instrumentation for the treatment of vascular malformations of the brain. This multidisciplinary effort of neurosurgeons, physicists, radiologists, and radiation oncologists is planned on a three-dimensional and multiplanar computerized model using high resolution brain mapping imaging techniques.

Henry and Arline Gluck Mobile Stroke Rescue Program

UCLA has developed a Mobile Stroke Unit (mobile CT ambulance) for advanced diagnosis, triage, and treatment of prehospital patients, including prehospital thrombolysis for acute ischemic stroke and prehospital reversal of anticoagulation for acute intracranial hemorrhage.

Selected Advances in Stroke Care and Research from THE UCLA COMPREHENSIVE STROKE CENTER

- **First device therapy for acute ischemic stroke**
 - Coil Retriever, Stent Retriever
 - Invented/Developed at UCLA
- **Leading device therapies for cerebral aneurysms**
 - Guglielmi detachable coil, Matrix coil
 - Invented at UCLA
- **Leading catheter therapy for intracranial arteriovenous malformations and fistulae**
 - Onyx liquid embolic agent
 - Developed at UCLA
- **First MRI demonstration of successful reversal of advanced stroke injury in humans**
- **First validated instrument for paramedic recognition of stroke**
 - Los Angeles Prehospital Stroke Screen (LAPSS)
- **First validated instrument for paramedic recognition of large vessel occlusion (LVO)**
 - Los Angeles Motor Scale (LAMS)
- **First prehospital neuroprotective treatment of stroke trial**
 - Field Administration of Stroke Therapy - Magnesium (FAST-MAG)
- **First stroke device studied utilizing FDA approved exception from informed consent under emergency circumstances**
- **First multi-center trial of body weight-supported treadmill training and drug therapies for stroke**
- **First clinical cellphone PACS system for remote review of CT and MRI scans in acute stroke**
 - Developed at UCLA
- **First US multicenter trial of endoscopic treatment for acute intracerebral hemorrhage**
- **First trial of indirect revascularization for patients with intracranial atherosclerosis**
- **First routine use of intraoperative digital subtraction angiography for evaluation after surgical aneurysm and AVM treatment**
- **First Neuro ICU-adjacent comprehensive stroke imaging center with CT, PET, 3T MRI**
- **First ICU and ED robot for remote monitoring of stroke patients**
- **First cerebral blood flow laboratory to use bedside xenon CBF studies and TCD for stroke critical care and research**
- **First clinical information system with acute stroke management dashboard**
- **First to deploy write-once, write-everywhere stroke note for clinical documentation and automated quality and research database completion**
- **First systematic secondary prevention program for cerebral atherosclerosis**
 - Preventing Recurrence of Thromboembolic Events through Coordinated Treatment (Stroke PROTECT Program)
- **First accredited undergraduate program for Student Stroke Research**
 - UCLA Student Stroke Team
- **First accredited undergraduate program for Stroke Community Education and Research**
 - UCLA Stroke Force
- **First confirmation that stroke diagnosis in the field by paramedics and neurologists by cell phone is highly accurate**
 - Field Administration of Stroke Therapy - Magnesium (FAST-MAG)
- **First validation of wearable, remote wireless health monitoring for stroke**
 - Developed by UCLA Wireless Health Institute faculty and students
- **First medical system in the Western United States to operate a Mobile Stroke Unit**
 - UCLA Arline and Henry Gluck Stroke Rescue Program

SYMPOSIUM INFORMATION

ENROLLMENT - *Extremely Limited.*

****EARLY ENROLLMENT IS ADVISED****

We accept American Express, MasterCard, Visa, and Discover.

Online Registration

Please follow registration procedures located at www.cme.ucla.edu/courses and click on "UCLA Brain Attack! '19".

By Phone: Call **(310) 794-2620**.

ENROLLMENT FEES

Includes course registration, syllabus, continental breakfast, break refreshments, and lunch.

\$200 Early Enrollment
\$225 (After March 29th)
\$150 UC Faculty/Staff

LOCATION

UCLA Carnesale Commons

251 Charles E. Young Drive, West
Los Angeles, CA 90095

(see next page for map and directions)

PARKING

From 7:00 AM to 1:00 PM, a \$12 pre-paid parking permit will be supplied by the course and provided to you at the Sunset Village parking structure entrance for non-UCLA attendees.

Please convey that you are attending the UCLA Brain Attack! Symposium and the attendant will issue you the pre-paid parking permit.

If you arrive outside the specified time frame, you may purchase a parking permit at the Westwood parking kiosk off Westwood Boulevard at your own expense of \$12, cash only.

ACCREDITATION

The Office of Continuing Medical Education, David Geffen School of Medicine at UCLA is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Office of Continuing Medical Education, David Geffen School of Medicine at UCLA designates this live activity for a maximum of **7.00 AMA PRA Category 1 Credits™**. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Disclosure

The FDA has issued a concept paper which classifies commercial support of scientific and educational programs as promotional unless it can be affirmed that the program is "truly independent" and free of commercial influence. In addition to independence, the FDA requires that non-promotional, commercially supported education be objective, balanced, and scientifically rigorous. The policy further states that all potential conflicts of interest of the CME staff and faculty be fully disclosed to the program's participants. In addition, Accreditation Council for Continuing Medical Education policy mandates that the provider adequately manages all identified potential conflicts of interest prior to the program. We at UCLA fully endorse the letter and spirit of these concepts.

Refunds

Cancellations must be received in writing by March 29, 2019, and will be subject to a \$75 processing fee. No refunds will be given after that date. If, for any reason, the course must be canceled, discontinued, or rescheduled by the Office of Continuing Medical Education, a full refund will be provided. You may fax your refund request to 310-794-2624.

ACCOMMODATIONS

Although not specifically endorsed by this conference, a list of hotels conveniently located to UCLA is available here: <https://www.uclahealth.org/lodging>

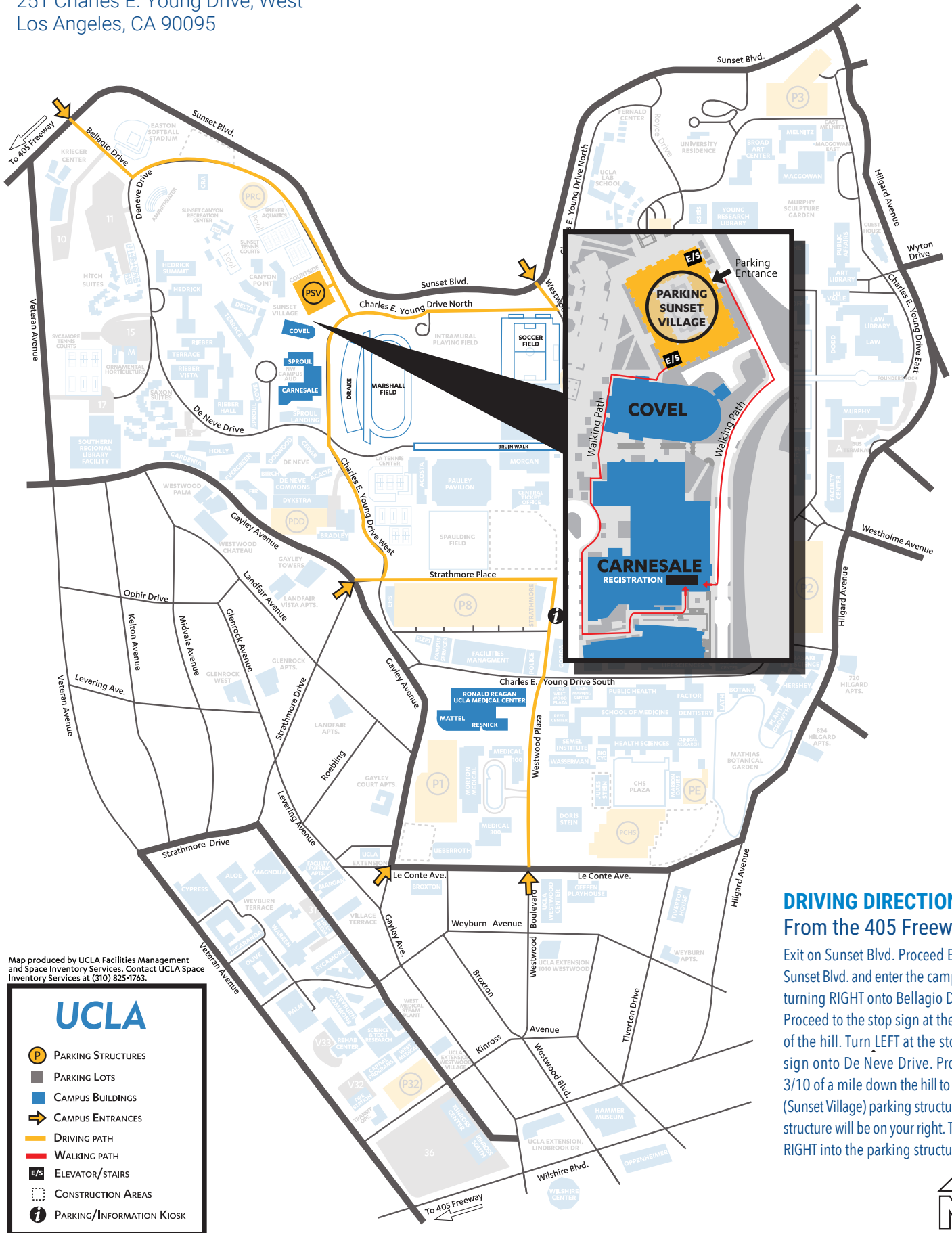
For additional information

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UCLA Carnesale Commons

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Los Angeles, CA 90095



DRIVING DIRECTIONS From the 405 Freeway

Exit on Sunset Blvd. Proceed **EAST** on Sunset Blvd. and enter the campus by turning **RIGHT** onto Bellagio Drive. Proceed to the stop sign at the top of the hill. Turn **LEFT** at the stop sign onto De Neve Drive. Proceed 3/10 of a mile down the hill to the SV (Sunset Village) parking structure. The structure will be on your right. Turn **RIGHT** into the parking structure.

