

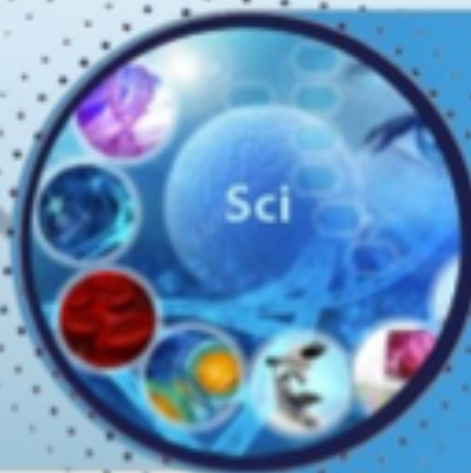


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THE UNIVERSITY OF CALIFORNIA, SAN FRANCISCO (USA) entirely dedicated to health sciences and life sciences.

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ABSTRACT

We continue our ruble of an acquaintance of our colleagues with the leading universities of the world, which are included in the top trend educational institutions [1-3]. This time we would like to introduce you to the University of California, San Francisco (UCSF). University of California, San Francisco is unique among the University of California campuses in that it performs only biomedical and patient-centred research in its Schools of Medicine, Pharmacy, Nursing, and Dentistry, and the Graduate Division, and their hundreds of associated laboratories. The UCSF School of Medicine is the oldest in the Western United States. In 2021, the School of Medicine was the second-highest recipient of National Institutes of Health research funds among all U.S. medical schools, receiving awards totalling \$630 million. In 2016, the School of Medicine launched the Bridges curriculum, more than half of which is dedicated to diagnostic reasoning. The UCSF Medical Center is rated as the 12th best hospital in the US and 3rd best in California. We hope that this article will be useful for a wide range of readers.

Keywords: University of California, San Francisco, Schools of Medicine, Pharmacy, Nursing, Dentistry

INTRODUCTION

The University of California, San Francisco (UCSF) is a public land-grant research university in San Francisco, California. It is part of the University of California system and is dedicated entirely to health science and life science. It conducts research and teaching in medical and biological sciences.

UCSF was founded as Toland Medical College in 1864. In 1873, it became affiliated with the University of California as its Medical Department. In the same year, it

incorporated the California College of Pharmacy and in 1881 it established a dentistry school. Its facilities were in both Berkeley and San Francisco. In 1964, the school gained full administrative independence as a campus of the UC system, headed by its own chancellor, and in 1970 it gained its current name. Historically based at Parnassus Heights with satellite facilities throughout the city, UCSF developed a second major campus in the newly redeveloped Mission Bay district in the early 2000s.

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U.S. News & World Report's 2022–23 rankings recognize the UCSF school of medicine as the third best medical school for research in the nation (tied with medical schools of Columbia University and Johns Hopkins University) and as the second-best medical school for primary care. It is the only medical school to rank in the top three in both categories. In 2022, UCSF attracted the 2nd highest research funding from the National Institutes of Health. The UCSF Medical Center is ranked 12th nationally and third in the state. In 2021, the university spent \$1.71 billion in research and development, the second most among institutions of higher education in the U.S.

With 25,398 employees, UCSF is the second-largest public agency employer in the San Francisco Bay Area. UCSF faculty have treated patients and trained residents since 1873 at the San Francisco General Hospital and for over 50 years at the San Francisco VA Medical Center.

HISTORY

The University of California, San Francisco traces its history to Hugh Toland, a South Carolina surgeon who found great success and wealth after moving to San Francisco in 1852. A previous school, the Cooper Medical College of the University of Pacific (founded 1858), entered a period of uncertainty in 1862 when its founder, Elias Samuel Cooper, died. In 1864, Toland founded a new medical school, Toland Medical College, and the faculty of Cooper Medical College chose to suspend operations and join the new school.

The University of California was founded on March 23, 1868, with the enacting of its Organic Act. Section 8 of the Organic Act authorized the Board of Regents to affiliate the University of California with independent self-sustaining professional colleges. In 1870, Toland Medical School began to negotiate an affiliation with the new public university. Meanwhile, some faculty of Toland Medical School elected to reopen the Medical Department of the University of the Pacific, which would later become Stanford University School of Medicine. Negotiations between Toland and UC were complicated by Toland's demand that the medical school continue to bear his name, an issue on which he finally conceded. In March 1873, the trustees of Toland Medical College transferred it to the Regents of the University of California, and it became The Medical Department of the University of California. At the same time, the University of California also negotiated the incorporation of the California College of Pharmacy, the first pharmacy school in the West, established in 1872 by the California Pharmaceutical Society. The Pharmacy College was affiliated in June 1873, and together the Medical College and the Pharmacy College came to be known as the "Affiliated Colleges". The third college, the College of Dentistry, was established in 1881.



Toland Hall in 1887. Toland Hall on Stockton was the first home of the school, before its transfer to the Parnassus campus.

Initially, the three Affiliated Colleges were located at different sites around San Francisco, but near the end of the 19th Century interest in bringing them together grew. To make this possible, San Francisco Mayor Adolph Sutro donated 13 acres in Parnassus Heights at the base of Mount Parnassus (now known as Mount Sutro). The new site, overlooking Golden Gate Park, opened in the

fall of 1898, with the construction of the new Affiliated Colleges buildings. The school's first female student, Lucy Wanzer, graduated in 1876, after having to appeal to the UC Board of Regents to gain admission in 1873.

Until 1906, the faculty of the medical school had provided care at the city-County Hospital (named San Francisco General Hospital from 1915–2016 and Zuckerberg San Francisco General Hospital and Trauma Center (SFGH) since 2016), but the medical school still did not have a teaching hospital of its own.

The schools continued to grow in numbers and reputation in the following years. One notable event was the incorporation of the Hooper Foundation for Medical Research in 1914, a medical research institute second only to the Rockefeller Institute. This addition bolstered the prestige of the Parnassus site during the long-running dispute over whether the schools should consolidate at Parnassus or in Berkeley. The final decision came in 1949 when the Regents of the University of California designated the Parnassus campus as the UC Medical Center in San Francisco. After the medical facilities were updated and expanded, the preclinical departments returned to San Francisco in 1958, and from that point forward the M.D. degree program was again provided entirely in Parnassus Heights. During this period several research institutes were established, and many new facilities were added, such as the 225-bed UC Hospital (1917), the Clinics Building (1934), the Langley Porter Clinic (1942) and the Herbert C. Moffitt Hospital (1955). In 1958, the addition of the Guy S. Millberry Union offered dorms and services for students.

With medical education again concentrated in San Francisco, the UC Medical Center gained more independence and autonomy from the Berkeley campus during the 1960s. The four departments were renamed as "School of ..." and the Graduate Division was founded in 1961. Further along this line, in 1964 the institution obtained full administrative independence under the name University of California, San Francisco Medical Center, becoming the ninth campus in the University of California system and the only one devoted exclusively to the health sciences. The first Chancellor under the new independent configuration was John B. de C.M. Saunders, previously Provost, who had a strong preference for medical training over research. This stance led to his resignation and the naming of Willard C. Fleming, DDS, as the second Chancellor in 1966. Fleming brought balance between clinicians and researchers and a new level of stability to the administration. By the end of the 1960s, the university was starting to become a leading research

center; its research enterprise was bolstered by the opening of Health Sciences East and Health Sciences West the same year.



The Affiliated Colleges buildings in 1908, with the streetcar that used to run on Parnassus

Under the guidance of the third Chancellor, Philip R. Lee, the institution was renamed to its current form, the University of California, San Francisco (UCSF), a symbol of its coequal status as a UC campus and a research university, while the Medical Center name was kept for its hospital facilities. Lee also was crucial in guiding UCSF through the turmoil of the late 1960s and worked to increase minority recruitment and enrollment. By then, UCSF had already reached the top ranks of US schools in the health sciences through its innovative programs that blended basic science, research, and clinical instruction. This stature was further augmented by Francis A. Sooy, fourth Chancellor, dedicated his ten years to recruiting the top physicians and scientists in the field.

The 1970s saw a dramatic expansion of UCSF, both in its medical capacities and as a research institute. The increase in researchers, physicians and students brought a need for additional space. The nursing school opened its own building in 1972 and the medical center opened the Ambulatory Care Center in 1973. The discovery of recombinant DNA technology by UCSF and Stanford scientists in the mid-1970s opened many new avenues of research and attracted more people. UCSF scientists also played a central role in the birth and development of the biotechnology industry in the San Francisco Bay area during this period. Herbert Boyer, a Professor of UCSF's biochemistry and biophysics department co-founded Genentech, the first therapeutic biotech firm, and UCSF

scientists were also involved in the formation of most other major biotech firms in the San Francisco region that date back to the late 1970s and early 1980s. Furthermore, a 2006 analysis of the roots of the ten largest biotech firms measured in terms of their market capitalization in the San Francisco region highlighted the central position of UCSF continued to play within the region's industry: six biotech firms out of the top ten were either directly or indirectly linked to UCSF—a direct link meaning that the firm was founded by a UCSF scientist, an indirect link meaning that the firm was spun-off from a firm founded by a UCSF scientist.

On the clinical side, great advances in patient care, diagnostics, and treatments advanced UCSF's reputation in the health field. 1975 also saw the opening of the UCSF Center in Fresno.



Panorama of UCSF and Golden Gate Park from Health Sciences West

Julius R. Krevans, the fifth Chancellor from 1982 to 1993, was a strong advocate of biomedical research and public policy in the health sciences. During his tenure, UCSF rose to become one of the leading recipients of NIH funding. This led to the need for new space, and additions included the Marilyn Reed Lucia Child Care Center in 1978, the Dental Clinics Building (1980), the new Joseph M. Long Hospital in 1983 (which was integrated with the existing Moffitt Hospital), the Beckman Vision Center and the Koret Vision Research Laboratory (1988), and the Kalmanovitz Library (1990).

Due to the space constraints of the Parnassus Heights campus, UCSF started looking into expanding into other areas of the city. The university opened UCSF Laurel Heights in 1985 in the Laurel Heights neighborhood. Initially intended for pharmacy school laboratory re-

search and instruction, neighborhood concerns pushed the university to instead employ the building for academic desktop research, social and behavioral science departments, and administrative offices. On the western side of the city, the university acquired Mount Zion Hospital in 1990, which became the second major clinical site and since 1999 has hosted the first comprehensive cancer center in Northern California. Under the chancellorship of Joseph B. Martin, UCSF attempted a short-lived merger of its health system with Stanford Health and laid the groundwork for the expansion into Mission Bay.



The Mission Bay Campus, UCSF's second campus, developed starting in 1999

In 2009, Susan Desmond-Hellmann became the ninth Chancellor and the first woman to lead UCSF. She was tasked with guiding the university through the aftermath of the financial crisis of 2007–2008. In the same year, UCSF professor Elizabeth Blackburn won the Nobel Prize for Medicine and in 2012 UCSF professor Shinya Yamanaka won the Nobel Prize in Physiology or Medicine.

The 2010s saw increased construction and expansion at Mission Bay, with the Smith Cardiovascular Research Building, the UCSF Medical Center at Mission Bay, the Benioff Children's Hospital in 2010, the Sandler Neuroscience Center in 2012, Mission Hall and the Baker Cancer Hospital in 2013. The Children's Hospital was named after Marc Benioff, who donated \$100 million toward

the new facility. In 2011, expansion also resumed at the Parnassus campus, with the construction of the Regeneration Medicine Building, a \$123 million construction designed by New York architect Rafael Vinoly. The Stem Cell Center was named in honour of Eli Broad, who donated \$25 million to the cause of research for diabetes, cardiovascular disease, Parkinson's disease, HIV/AIDS, and cancer.



The Institute for Regeneration Medicine, designed by Rafael Viñoly and completed in 2010

In 2014, UCSF celebrated its 150th anniversary with a year of events. That same year Neonatologist and Dean of the UCSF School of Medicine Sam Hawgood, MBBS, became the tenth Chancellor. In 2015, the Mission Bay campus saw the grand opening of the new UCSF Medical Center at Mission Bay, a 289-bed integrated hospital complex dedicated to serving children, women, and cancer patients.

CAMPUS

UCSF operates four major campus sites within the city of San Francisco and one in Fresno, California, as well as numerous other minor sites scattered through San Francisco and the San Francisco Bay Area.

The Parnassus Heights campus was the site of the Affiliated Colleges, which later evolved into the present-day institution. The site was established along Parnassus Avenue in 1898 on land donated by Mayor Adolph Sutro. At the time, the site was in the remote and uninhabited western part of San Francisco, but its medical facilities became vital in saving lives when 40,000 people were hosted in the nearby Golden Gate Park after the 1906 earthquake. In the early 1900s, the medical re-

search operations of the medical centre were split between Parnassus and UC Berkeley, and discussions arose about which site should become the centre of medical activity.



The Parnassus campus, home of many academic programs and the UCSF Medical Center, with Mount Sutro and the Sutro Tower in the background

In 1914, the Hooper Foundation for Medical Research decided to move its research work to the Parnassus site, becoming the first medical research foundation in the United States to be incorporated into a university. This expansion led to a 1949 decision by the UC Board of Regents designating the UCSF campus, rather than UC Berkeley, as the main site for all medical sciences of the UC system. The 20th century saw remarkable growth, with the expansion of new research institutes and facilities, which led to the administrative independence of UCSF and the selection of John B. de C.M. Saunders as the first Chancellor in 1964.

Parnassus serves as the main campus of the University and includes administration offices, numerous research labs, the 600-bed UCSF Medical Center, the Langley Porter Psychiatric Institute, the Mulberry Student Union, and the UCSF Library. Additionally, the Schools of Dentistry, Pharmacy, Medicine, and Nursing are also located at Parnassus. It also houses the UCSF neurology outpatient practice that serves as a referral center for most of northern California and Reno, Nevada. UCSF's Beckman Vision Center is also located at the Parnassus campus. It is a center for the diagnosis, treatment, and research of all areas of eye care, including vision correction surgery. Also located on the Parnassus campus is the UCSF Fetal Treatment Center, a multidisciplinary care center dedicated to the diagnosis, treatment, and long-term follow-up of fetal birth defects.

UCSF's Mission Bay Campus, also located in San Francisco, is the largest ongoing biomedical construction project in the world. The 43-acre (17 ha) Mission Bay campus, opened in 2003 with construction still ongoing, contains additional research space and facilities to foster biotechnology and life sciences companies. It will dou-

ble the size of UCSF's research enterprise over the next 10 years. The biotechnology company Genentech contributed \$50 million toward the construction of a building as part of a settlement regarding the alleged theft of UCSF technology several decades earlier.



The Mission Bay campus, with Genentech Hall and the Rutter Community Center facing Koret Quad

Also located on the Mission Bay campus, the Arthur and Toni Rembe Rock Hall was designed by César Pelli and opened in February 2004. The building is named in honor of Arthur Rock and his wife, who made a \$25 million gift to the university.

Byers Hall serves as the headquarters for the California Institute for Quantitative Biosciences (QB3), a cooperative effort between the UC campuses at San Francisco, Berkeley, and Santa Cruz. The building is named after venture capitalist Brook Byers, co-chair of UCSF's capital campaign that concluded in 2005 and raised over \$1.6 billion.

Additionally, the William J. Rutter Center, designed along with the adjacent 600-space parking structure by Ricardo Legorreta, opened in October 2005 and contains a fitness and recreation center, swimming pools, student services, and conference facilities. The building is named in honour of William J. Rutter, former Chairman of the university's Department of Biochemistry & Biophysics and co-founder of Chiron Corporation. A housing complex for 750 students and postdoctoral fellows and an 800-space parking garage also opened in late 2005. And a fourth research building, designed by Rafael Viñoly and named the Helen Diller Family Cancer Research Building, opened in June 2009. Two additional research buildings designated for neuroscience and cardiovascular research are currently in the planning and design phase. A new specialty hospital focused on women, children, and cancer on the Mission Bay campus opened in February 2015.

OTHER CENTERS, INSTITUTES, AND PROGRAMS

The Mount Zion Campus contains UCSF's NCI-designated Comprehensive Cancer Center, its Women's Health Center, the Osher Center for Integrative Medicine and outpatient resources. The San Francisco General Hospital campus cares for the indigent population of San Francisco and contains San Francisco's only Level I trauma center. The hospital itself is owned and operated by the City and County of San Francisco, but all its doctors are UCSF faculty physicians and UCSF maintains research laboratories at the hospital campus. The earliest cases of HIV/AIDS were discovered at San Francisco General Hospital in the 1980s. To this day SF General Hospital has one of the world's leading HIV/AIDS treatment and research centers.

UCSF is also affiliated with the San Francisco VA Medical Center and the J. David Gladstone Institutes; a private biomedical research entity has recently moved to a new building adjacent to UCSF's Mission Bay campus. Since 2014, there has also been an affiliation with UCSF Benioff Children's Hospital Oakland (formerly Children's Hospital & Research Center Oakland).

Among the related Institutes that are part of UCSF is the Philip R. Lee Institute for Health Policy Studies, founded in 1972 by Philip Randolph Lee.

UCSF cooperates with the Hastings College of Law, a separate University of California institution located in San Francisco. This includes the formation of the UCSF/Hastings Consortium on Law, Science, and Health Policy. The program offers an LLM and MSL Degree program for health and science professionals. The Philip R. Lee Institute for Health Policy Studies is a partner in this consortium.

ACADEMICS

University of California, San Francisco is unique among the University of California campuses in that it performs only biomedical and patient-centred research in its Schools of Medicine, Pharmacy, Nursing, and Dentistry, and the Graduate Division, and their hundreds of associated laboratories. The university is known for innovation in medical research, public service, and patient care. UCSF's faculty includes 7 Nobel Prize winners, 31 members of the National Academy of Sciences, 69 members of the Institute of Medicine, and 30 members of the Academy of Arts and Sciences. UCSF graduate degrees include the Master of Science, Doctor of Philosophy, Doctor of Pharmacy, Doctor of Medicine,

Doctor of Dental Surgery, and Doctor of Physical Therapy.

UCSF is considered one of the world's preeminent medical and life sciences universities. In 2019, the Academic Ranking of World Universities, published annually by Shanghai Jiaotong University, ranked UCSF 1st in the world for Clinical Medicine and 2nd in the world for Pharmacy. Previously, UCSF had been second in the world for Clinical Medicine and Pharmacy from 2007–2015, ceding the #2 position to the University of Washington in 2016. The professional schools of the University of California, San Francisco are among the top in the nation, according to current U.S. News & World Report graduate school and other rankings. The schools also rank at or near the top in research funding from the National Institutes of Health. Among U.S. medical schools, UCSF is ranked 3rd for research and ranked 2nd for clinical training in the primary care specialties (internal medicine, family medicine, and paediatrics) by U.S. News & World Report.

The UCSF Medical Center is rated as the 12th best hospital in the US and 3rd best in California (behind Cedars-Sinai Medical Center and UCLA Medical Center, which are both located in Los Angeles) according to the U.S. News & World Report

SCHOOL OF MEDICINE

The UCSF School of Medicine is the medical school of the University of California, San Francisco and is located at the base of Mount Sutro on the Parnassus Heights campus in San Francisco, California. Founded in 1864 by Hugh Toland, it is the oldest medical school in California and in the western United States. U.S. News & World Report ranked the school third in research training and second in primary care training; it is the only medical school in the nation to rank among the top three in both categories. Six members of the UCSF faculty have received the Nobel Prize in Physiology or Medicine and five have received the National Medal of Science.

For fiscal year 2022, UCSF was the top recipient of National Institutes of Health (NIH) research funding and awards amongst all U.S. organizations, with \$818.3 million in funding across 1,497 awards. The school is affiliated with the UCSF Medical Center, which is ranked, in the 2022-23 U.S. News & World Report rankings, as the 12th best hospital in the United States and third best hospital in the state of California. UCSF faculty have treated patients and trained residents since 1873 at the San Francisco General Hospital and for over 50 years at the San Francisco VA Medical Center.

The UCSF School of Medicine has seven major sites throughout the San Francisco Bay Area and is composed of 28 academic departments, eight organized research units, and five interdisciplinary research centers. The main site is at the Parnassus Heights campus, which is home to the UCSF Medical Center and the Langley Porter Psychiatric Institute. The UCSF Medical Center at Mission Bay opened in 2015 and is home to the UCSF Benioff Children's Hospital, UCSF Betty Irene Moore Women's Hospital, and the UCSF Bakar Cancer Hospital.



**THE UNIVERSITY OF CALIFORNIA,
SAN FRANCISCO (USA)**

The school was founded in 1864 as the Toland Medical College by Hugh H. Toland, a South Carolina surgeon who found great success and wealth after moving to San Francisco in 1852. A previous school, the Cooper Medical College of the University of Pacific (founded 1858), entered a period of uncertainty in 1862 when its founder, Elias Samuel Cooper, died. In 1864, Toland founded Toland Medical College and the faculty of Cooper Medical College chose to suspend operations and join the new school. In 1873 the college affiliated with the University of California. Together with the School of

Dentistry, they became UCSF's first two "Affiliated Colleges" and were followed by the College of Dentistry in 1881 and the UC Training School for Nurses in 1907.

The University of California was founded in 1868, and by 1870 Toland Medical School began negotiating an affiliation with the new public university. Meanwhile, some faculty of Toland Medical College elected to reopen the Medical Department of the University of the Pacific, which would later become Stanford University School of Medicine. Negotiations between Toland and UC were complicated by Toland's demand that the medical school continue to bear his name, an issue on which he finally conceded. In March 1873, the trustees of Toland Medical College transferred it to the Regents of the University of California, and the school became "The Medical Department of the University of California."

The University gained more independence in the 1960s when it started to be seen as a campus in its own right instead of as the medical center of the UC system. The four departments were renamed as "School of ..." and the UCSF Graduate Division was founded in 1961. In 1964 the institution obtained full administrative independence under the name University of California, San Francisco Medical Center, becoming the ninth campus in the University of California system and the only one devoted exclusively to the health sciences.

A pivotal moment in UCSF history was the deal between Vice-Chancellor Bruce Spaulding and San Francisco Mayor Willie Brown for the development of the Mission Bay campus in 1999. Renowned scientist J. Michael Bishop, recipient of both the Lasker Award and Nobel Prize in Medicine (together with UCSF professor Harold Varmus), became the eighth Chancellor in 1998. He oversaw one of UCSF's major transition and growth periods, including the expanding Mission Bay development and philanthropic support recruitment. During his tenure, he unveiled the first comprehensive, campus-wide, strategic plan to promote diversity and foster a supportive work environment. During this time, UCSF also adopted a new mission: advancing health worldwide. The 2010s saw increased construction and expansion at Mission Bay, with the Smith Cardiovascular Research Building, the UCSF Medical Center at Mission Bay, and the Benioff Children's Hospital in 2010, the Sandler Neuroscience Center in 2012, and Mission Hall and the Baker Cancer Hospital in 2013. In 2012, the school opened the UCSF Anatomy learning center. The Children's Hospital was named after Mark Benioff, who donated \$100 million toward the new facility. In 2015, the Mission Bay campus saw the grand opening of the

new UCSF Medical Center at Mission Bay, a 289-bed integrated hospital complex dedicated to serving children, women, and cancer patients. The school started the new Bridges curriculum in 2016 with the class of 2020.

GRADUATE DIVISION

The UCSF Graduate Division is the graduate school of the University of California, San Francisco, and is in San Francisco. It is recognized as one of the premier biomedical graduate schools in the United States. It offers 19 PhD programs, 11 MS programs, two certificates and a physical therapy program.

In the 1960s, UCSF (then called the Medical Department of the University of California) gained more independence from the UC system. It started to be regarded as a campus instead of the medical center of the UC system. The four departments (Medicine, Pharmacy, Dentistry, and Nursing) were renamed as "School of", and the Graduate Division was founded in 1961. The UC Regents began to decentralize graduate education, which had been previously concentrated at Berkeley, and UCSF received a graduate dean and council.

The first dean, Harold Harper, had been a staunch advocate of graduate studies independence, and the recognition of graduate activities in general and basic sciences. He was crucial in transferring the graduate programs from the Berkeley campus to the UCSF campus.

At the time of its creation, the UCSF Graduate Division offered graduate programs in anatomy, biochemistry, comparative biochemistry, biophysics, dental surgery, dentistry, endocrinology, history of medicine, medical physics, microbiology, nursing, nutrition, pathology, comparative pathology, pharmaceutical chemistry, pharmacology, comparative pharmacology and toxicology, physiology, and animal physiology. More programs were added in 1966, such as degrees in oral biology, nursing science, and psychology. In 1969, the School of Medicine and the Graduate Division sponsored the creation of the Medical Scientist Training Program (MSTP). This program, funded by the US Public Health Service, offers a special stipend to students to pursue graduate work along with a medical degree, to address the lack of research training in physicians.

After Harper's 20 year-long leadership, he was followed in 1981 by professor of Microbiology and Immunology Lloyd Kozloff, who served until 1991. Under his leadership, the Program in Biological Sciences (PIBS) and the Biomedical Sciences (BMS) was developed at the Parnassus campus, and the Graduate Division

started exponentially growing its numbers of postdoctoral students in biological, physical, and social sciences.

The programs offered by the UCSF Graduate Division include:

Basic and Biomedical Sciences.

Tetrad (Biochemistry and Molecular Biology, Cell Biology, and Genetics).

Bioengineering (joint with UC Berkeley).

Biological and Medical Informatics (BMI).

Biomedical Sciences (BMS).

Biophysics.

Chemistry and Chemical Biology (CCB).

Developmental and Stem Cell Biology (DSCB).

Epidemiology and Translational Science.

Genetic Counseling.

Neuroscience.

Oral and Craniofacial Sciences.

Pharmaceutical Sciences and Pharmacogenomics (PSPG).

Rehabilitation Science.

Social and Populational Sciences.

Global Health Sciences.

History of Health Sciences.

Medical Anthropology.

Nursing.

Sociology.

SCHOOL OF NURSING

The UCSF School of Nursing is the nursing school of the University of California, San Francisco, and is in San Francisco, California. It consistently ranks among the top nursing schools in the United States by NIH funding. It is recognized as one of the premier graduate nursing schools in the United States.

Following the 1906 San Francisco earthquake, more than 40,000 people were relocated to a makeshift tent city in Golden Gate Park and were treated by the faculty of the Affiliated Colleges (now called UCSF). This brought the school, which until then was located on the western outskirts of the city, in contact with a significant population and fueled the commitment of the school towards civic responsibility and health care, increasing the momentum towards the construction of health facilities. In April 1907 one of the buildings was renovated for outpatient care with 75 beds. This created the need to train nursing students, and in 1907, the UC Training School for Nurses was established as the fourth Affiliated College of the University of California Medical Department, joining the Colleges of Medicine, Dentistry, and Pharmacy.



Benny Bufano's Bear and Cub sculpture outside Kalmanovitz Library

SCHOOL OF PHARMACY

The school was founded in 1872 as the California College of Pharmacy by the California Pharmaceutical Society, itself then only four years old. At the time, the school became the first in the West and the tenth in the United States. The objectives of the founders were to “advance pharmaceutical knowledge and elevate the professional character of apothecaries throughout California.” On June 2, 1873, the college affiliated with the University of California, shortly after the Toland Medical College affiliates. The two schools became UCSF's first two “affiliated colleges” and were followed by the College of Dentistry in 1881 and the UC Training School for Nurses in 1907.

SCHOOL OF DENTISTRY

Founded in 1881, the School of Dentistry is the oldest dental school in the state of California and in the Western United States. It is accredited by the American Dental Association and offers the Doctor

of Dental Surgery (DDS), PhD in Oral and Craniofacial Sciences, MS in Oral and Craniofacial Sciences, and MS in Dental Hygiene degrees.



Buildings at the Mission Bay campus

In 2022–23, U.S. News & World Report recognized UCSF Medical Center as the 12th-best hospital in the nation and the third-best in California. UCSF received the following ranking in 17 adult medical specialties.

RESEARCH

UCSF is among the world's leading institutions in biological and medical research. Its departments span all fields of biomedical science, from basic to translational sciences. In fiscal year 2021, it spent \$1.71 billion in research and development, the second most among institutions of higher education in the U.S. In fiscal year 2020, UCSF received \$680 million in funding from the National Institutes of Health, which is the 2nd highest of all US domestic higher education universities.



UCSF Fresno

MILESTONES INCLUDE:

The discovery of oncogenes and the conversion of normal cellular genes can be converted to cancer genes

(Nobel Prize in Medicine, J. Michael Bishop, and Harold Varmus, 1989).



The Gladstone Institutes, a partner research institute on the Mission Bay campus

The techniques of recombinant DNA, the seminal step in the creation of the biotechnology industry, together with Stanford.

The precise recombinant DNA techniques led to the creation of a hepatitis B vaccine.

The first successful in-utero fetal surgery (Michael R. Harrison).

First to clone an insulin gene into bacteria, leading to the mass production of recombinant human insulin to treat diabetes.

First to synthesize human growth hormone and clone into bacteria, setting the stage for genetically engineered human growth hormone.

First to develop prenatal tests for sickle cell anaemia and thalassaemia.

Discovery of prions, a unique type of infectious agent responsible for a variety of neurodegenerative diseases (Nobel Prize in Medicine, Stanley B. Prusiner, 1997).

Development of catheter ablation therapy for tachycardia.

Discovery of the molecular nature of telomeres.

The discovery that missing pulmonary surfactants are responsible for the death of newborns with respiratory distress syndrome; is the first to develop a synthetic substitute for it, reducing infant death rates significantly.

The first care units for AIDS patients and pioneer work in the treatment of AIDS.

First to train pharmacists as drug therapy specialists.

First university west of the Mississippi to offer a doctoral degree in nursing.

First to develop an academic hospitalist program (and coined the term "hospitalist") (Robert M. Wachter).

First high-volume HIV counselling and testing program at the UCSF Alliance Health Project.

On June 5, 2015, surgeons at UCSF and California Pacific Medical Center successfully completed 18 surgeries in the nation's first nine-way, two-day kidney transplant chain in a single city.

STUDENT LIFE

There are more than 180 registered campus organizations at UCSF. These groups and clubs cover a broad range of interests, including educational, social, cultural, artistic, recreational, political, and spiritual. Every year, these organizations sponsor more than 1,200 activities and events.

The student government at UCSF consists of the Graduate and Professional Student Association (GPSA), which serves the collective interests of graduate and professional students. It aims at improving student life on a university and system-wide level with dialogue, action, and activities between students, faculty, and staff. It focuses on discussing University policy, informing constituents, advocating student interests, fostering relationships between academic programs, strengthening connections to better support students, and initiating actions and proposals.



The Rutter Community Center, which serves as the hub of student life in the Mission Bay campus

Synapse is the student newspaper at UCSF. It was founded in 1957, and since 1997 the newspaper has been both in print and online. In the fall of 2015, the newspaper rebranded from Synapse: The UCSF Newspaper to Synapse: UCSF Student Voices. The mission of Synapse

is to serve as the forum for the campus community, and it covers campus news and events, entertainment, and restaurant reviews, and a wide range of feature stories, editorials, and weekly columns, for the entire UCSF community. The newspaper focuses heavily on science and health, but it also covers arts, national news, and opinion articles.

UCSF students are eligible to become University of California student regent, a position on the University of California Board of Regents created by a 1974 California ballot proposition to represent University of California students on the university system's governing board. Student regents serve an approximately one-year term as 'student regent designate, followed by a one-year term as a full voting member of the Regents. Virtually any UC student in good academic standing may apply to be student regent. Traditionally, the position alternates between undergraduate and graduate students as well as between the various UC campuses.

NOTABLE ALUMNI AND FACULTY

James P. Allison, 2018 Nobel laureate for the discovery of cancer therapy by inhibition of negative immune regulation.

Carolyn Bertozzi - Nobel laureate, known for the development of click chemistry and bioorthogonal chemistry.

J. Michael Bishop – former UCSF Chancellor. Nobel laureate in Medicine (1989), worked to discover the cellular origin of retroviral oncogenes.

Elizabeth Blackburn, professor of biology and physiology at UCSF, Nobel laureate in Medicine (2009), and discoverer of the ribonucleoprotein enzyme, telomerase. Appointed a member of the President's Council on Bioethics in 2001 and fired in February 2004, reportedly for her public disagreements and political differences with Council chair Leon Kass and the Bush Administration, particularly on the issue of therapeutic cloning.

John Allen Clements was, the first to isolate pulmonary surfactant and to develop it artificially.

Joseph DeRisi biochemist, specializing in molecular biology, parasitology, genomics, virology, and computational biology. In 2004 was named a MacArthur Fellow, in 2008 was awarded the 14th Annual Heinz Award for Technology, the Economy, and Employment, in 2014 he received the John J. Carty Award for the Advancement of Science from the National Academy of Sciences, and in 2016 he was elected to the National Academy of Sciences.

Michael V. Drake – former University of California, Irvine Chancellor; former University of California Vice President-Health Affairs; former president of Ohio State University; current president of the University of California.

Jennifer Doudna – Adjunct professor of cellular and molecular pharmacology, Nobel laureate in Chemistry (2020).

Laura J. Esserman, surgeon and breast cancer oncology specialist, was named TIME Magazine's 100 most influential people in the world in 2016.

Richard Feachem, founding Executive Director of the Global Fund to Fight AIDS, Tuberculosis and Malaria (2002–2007).

Diana E. Forsythe is an anthropologist noted for her work on artificial intelligence and medical informatics.

Julie Gerberding – Director, Centers for Disease Control and Prevention (CDC).

Walter S. Graf, cardiologist, was a pioneer in the creation of the emergency paramedic care system.

Geoffrey C. Gurtner, microsurgeon, researcher, and medical academic.

Eva Harris is a professor in the School of Public Health at the University of California, Berkeley, and the founder and president of the Sustainable Sciences Institute. Research efforts focused on combating diseases that primarily afflict people in developing nations; 1997 MacArthur Fellows Program.

Michael R. Harrison – developed the initial techniques for fetal surgery and performed the first fetal surgery in 1981, and then went on to establish the UCSF Fetal Treatment Center, which was the first of its kind in the United States.

David Julius – a physiologist known for his work on molecular mechanisms underlying the detection of thermal stimuli and natural products. Received the 2010 Shaw Prize, 2017 Gairdner Award, 2020 Breakthrough Prize in Life Sciences, 2020 Kavli Prize in Neuroscience, and 2021 Nobel Prize in Physiology or Medicine.

Jay A. Levy, along with Robert Gallo at the National Cancer Institute and Luc Montagnier at the Pasteur Institute, was among the first to identify and isolate HIV as the causative agent in AIDS.

Michael Merzenich, Professor emeritus neuroscientist – brain plasticity research, basic and clinical sciences of hearing pioneer – CEO Scientific Learning, Posit Science.

Dean Ornish, who first established that coronary artery disease could be reversed with lifestyle changes

alone, author of the few bestseller books about healthy lifestyle choices.

Ardem Patapoutian, Nobel Prize laureate known for his work in characterizing the PIEZO1, PIEZO2, and TRPM8 receptors.

Stanley Prusiner – Nobel laureate in Medicine (1997), discovered and described prions.

Shuvo Roy, Inventor of the artificial kidney.

Harold Varmus – Nobel laureate in Medicine (1989), worked with J. Michael Bishop to discover the cellular origin of retroviral oncogenes. Also served as director of the National Institutes of Health during the Clinton Administration, as president of Memorial Sloan-Kettering Cancer Center from 2000 to 2010, and currently as the director of the National Cancer Institute.

Robert M. Wachter, a prominent expert in patient safety, coined the term hospitalist and is considered the academic leader of the field of hospital medicine. Wachter is now chair of UCSF's Department of Medicine.

Ron Vale molecular motors particularly on kinesin and dynein, he has received the Lasker Award (2012) and the Shaw Prize (2017).

V. Sasisekharan, proposed an alternate model for the Watson-Crick double helix.

Eric M. Verdin, fifth President and Chief Executive Officer of the Buck Institute for Research on Aging.

George Whipple, Nobel Prize in Physiology or Medicine in 1934 for discoveries concerning liver therapy in cases of anaemia.

Rachel Wilson, professor of neurobiology at Harvard Medical School, 2008 MacArthur Fellow.

Shinya Yamanaka was developed for reprogramming adult cells to pluripotential precursors, thus circumventing an approach in which embryos would be destroyed. Yamanaka won Shaw Prize in 2008 and the Nobel Prize for Medicine in 2012.

Keith Yamamoto, UCSF's first vice chancellor for Science Policy and Strategy and director of UCSF Precision Medicine; is the leading researcher investigating transcriptional regulation by nuclear receptors.

Consent for publication - The study is valid, and recognition by the organization is not required. The author agrees to open the publication.

Availability of data and material – Available.

Competing interests – No.

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REFERENCES:

1. de Gavieres, F. ., Khalmatova, B., Okhunov, A., & Atakov, S. (2023). COMPLUTENSE UNIVERSITY OF MADRID: Impressions. JOURNAL OF EDUCATION AND SCIENTIFIC MEDICINE, 1(1), 62-72. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/465>
2. Shadmanov, A., Kawell, Z., & Okhunov, A. (2023). FEATURES OF THE EDUCATIONAL PROGRAM IN FOREIGN UNIVERSITIES: ON THE EXAMPLE OF THE MEDICAL COLLEGE OF UNIVER-

SITY OF CENTRAL FLORIDA, USA. JOURNAL OF EDUCATION AND SCIENTIFIC MEDICINE, 2(2), 2-9. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/440>

3. Shadmanov, A., Okhunov, A., & Bobokulova, S. (2023). WHAT DO YOU KNOW ABOUT THE ROYAL COLLEGE OF PHYSICIANS (LONDON, UK)? : RESULTS OF THE VISIT. JOURNAL OF EDUCATION AND SCIENTIFIC MEDICINE, 1(3), 2-10. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/448>