

Physical Facilities: Dr. Alexander Mazin will be appointed Full Professor of Biochemistry and Structural Biology (BSB) with tenure. He and his research group will occupy **1,800 square feet** of laboratory and office space. Dr. Mazin's laboratory is within easy walking distance of our CPRIT-supported Center for Innovative Drug Discovery (CIDD, <http://utcidd.org/index.html>), High-throughput Screening Facility and other BSB/Institutional Core facilities that will be crucial for his work in drug discovery and development - described in http://biochem.uthscsa.edu/core_facilities.php. Other facilities such as FACS, Optical Imaging, Electron Microscopy, and a Mouse Transgenic Facility are on other floors of the same building. The BSB Department also operates an NMR facility at the Greehey Campus (~5 minutes by car or shuttle), where there are RNAi Screening, NGS, CyTof, and Single Cell Genomic Profiling Core Facilities. The CIDD Medicinal Chemistry Facility is located at the University of Texas San Antonio (UTSA, ~15 minutes driving distance). A cryoEM facility featuring a Glacios TEM for single-particle reconstructions of macromolecular complexes is being installed within the BSB Department. These core facilities are all staffed and directed by various faculty members through the support of Presidential, Center, Departmental, and CPRIT funds. BSB also provides extensive shared equipment for all faculty, including autoclaves, water purification systems, ultracentrifuges, incubators, cell disruptors, RTqPCR, IncuCyte, gel imaging systems, etc.

Intellectual Environment: Opportunities for synergistic interactions and collaborations are exceptionally strong. Dr. Mazin will join many other research groups studying aspects of DNA repair, DNA replication, aging, cellular senescence, epigenetics, and chromosome stability at UT Health San Antonio, including (1) Drs. Dmitri Ivanov, Patrick Sung, and Shaun Olsen, BSB CPRIT Scholars studying chromosome damage repair and BRCA biology, Nucleotide Excision Repair, and cell cycle checkpoints, respectively; (2) Drs. Yogesh Gupta and David Libich, fellow BSB structural biologists who have strong interests and expertise in applying a structure-based approach in the development of novel cancer therapeutics; (3) Dr. Rob Hromas, Dean of UT Health San Antonio's Long School of Medicine and an expert in DNA and replication fork repair; (4) Dr. Weixing Zhao, a new BSB faculty who is an expert in the biochemistry and genetics of BRCA1 and BRCA2; (5) Dr. Alexander Bishop, a faculty in Cell Systems and Anatomy and an expert in BRCA biology; (5) Dr. Sandeep Burma, a BSB joint appointee and Vice Chair of Research in the Department of Neurosurgery, who has strong expertise in DNA repair mechanisms and cellular senescence; (6) Dr. David Gius, Assistant Dean for Translation Research in our Long School of Medicine, Associate Director for Translation research in our Mays Cancer Center, Professor of Radiation Oncology, and CPRIT Scholar of Cancer Research), who is a leader in studying how mitochondrial anti-oxidation pathways affect the tumor microenvironment and aging; (7) CPRIT Scholars Drs. Jason Liu and Kexin Xu, and Drs. Sang Eun Lee, Timothy Huang, Paul Hasty, and Katsumi Kitagawa, faculty in Molecular Medicine and leaders in DNA repair mechanisms, epigenetics, and chromosome biology; (8) Drs. Mingjiang Xu and Feng-Chun Yang, who are new recruits in Molecular Medicine and Cell Systems and Anatomy, respectively, and experts in epigenetics in haematologic malignancies; (9) Drs. Robert Svatek, Tyler Curiel, and Virginia Kaklamani, cancer biologists in the NCI-designated Mays Cancer Center; (10) Dr. Peter Houghton, Director of the Greehey Children's Cancer Research Institute and faculty in Molecular Medicine and an expert in the etiology of pediatric cancers; and (11) Dr. Daruka Mahadevan, Chief of Hematology and Medical Oncology and a renowned expert in Phase I clinical trials. Dr. Mazin will lead future BSB and Cancer Center efforts in the recruitment of junior and senior investigators to help further strengthen our expertise in chromosome biology, cancer biology, and cancer drug discovery. We expect this network of scientific collaborations to be highly beneficial for the future of cancer biology and drug development, and also for the training and mentoring programs within the Mays Cancer Center and the larger UT Health community.

Recruitment and support of trainees: The Integrated Biomedical Sciences Graduate Program (which includes an MD/PhD track as well as a traditional PhD track) has several disciplines from which Dr. Mazin will be able to recruit graduate students. These include the Cancer Biology (CB), Cell Biology, Genetics, and Molecular Medicine (CGM), Biology of Aging (BA) and Biochemical Mechanisms in Medicine (BMM) disciplines. The CB discipline has two training grants (NCI and CPRIT) that provide multi-year support to graduate students and postdoctoral fellows, as well as undergraduate interns. In addition, a joint Biomedical Engineering (BME) Graduate Program with UTSA brings in quantitatively strong students who will contribute to structure-based efforts in drug discovery. There is also excellent support for trainees, including a program to help with preparing fellowship submissions for students and postdocs. This has resulted in UT Health San Antonio having the highest rate of NIH pre-doctoral fellowships of any MD/PhD program in the country.