The 2023 Sydney Brenner Prize
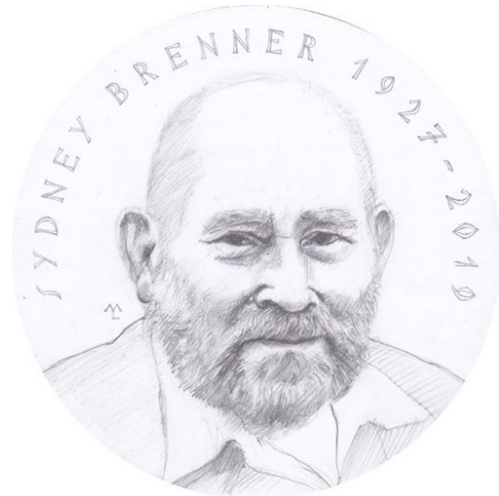# of the Academia Europaea

The Academia Europaea are pleased to award A SYDNEY BRENNER Medal for achievements in the Life Sciences to :

Professor Eugene YEO

The medal is given to honour the best in scholarship and personal achievements within a period of not more than 20 years after obtaining the PhD degree (with allowance for career breaks). The award is given to an individual scholar in the field of molecular biology and related disciplines. The Medal is awarded at the Annual Conference of the Academy and on that occasion the recipient will deliver a 'Sydney Brenner' lecture

The Academia Europaea Sydney Brenner Medal was established in 2022 to commemorate Sydney Brenner, one of the greatest scientists of the 20th century and one of the founding members of the Academia Europaea.

Professor Yeo will receive the medal and will deliver the accompanying lecture at the annual conference of the Academia Europaea, Munich, on October 10th, 2023. -

Title: *"***Mysteries of RNA processing and application to therapeutics***"***

Abstract: I will speak in general about our work in understanding how the myriad of proteins interact with RNA to modulate its metabolism, how defects in RNA processing cause human diseases and how we can leverage our knowledge of RNA biology to create new therapeutics.

<u>Brenner Medal Citation</u>

Dr. Yeo is a computational and experimental molecular and cell biologist who has contributed to genomics, RNA biology and therapeutics. His primary research interest is in understanding how RNA processing is regulated and the roles that RNA binding proteins (RBPs) play in development and disease. Gene has authored >200 peer-reviewed publications (h-index 89 and i10-index 161) including invited book chapters and review articles in the areas of neurodegeneration, RNA processing, computational biology and stem cell models; and served as Editor on two books on the biology of RNA binding proteins. Gene's mechanistic studies in RNA biology tend to feature comprehensive, systematic and robust methodologies developed by his lab, such as enhanced CLIP for the purposes of large-scale mapping of protein-RNA interactions (Van Nostrand et al, Nature Methods, 2016; >1000 citations). His lab has also developed the STAMP technology (Brannan et al, Nature Methods, 2021) which is the first transcriptome-wide method for identifying RNA binding protein sites and measuring mRNA translation at single-cell resolution and with isoform-sensitivity. To facilitate biological interpretation of RBP interactomics data, Gene's lab also pioneers computational algorithms, such as CLIPper (Lovci et al, NSMB, 2013; >300 citations), SONAR (Brannan et al, Molecular Cell, 2016 and recently SKIPPER (Boyle et al, Cell Genomics, 2023). As a graduate student Dr. Yeo authored the MaxENT splice site algorithm (Yeo et al, Journal Comp Biology, 2003), which is arguably one of the most utilized and cited splice site scorers. Armed with these cutting-edge technologies, his lab is also a major contributor of resources to study RBPs that enable hundreds of labs across many areas of bioscience, such as the world's largest resource of RBP-specific antibodies that facilitated generation and interpretation of the most comprehensive maps of RBP-binding sites to date for hundreds of RBPs (Van Nostrand et al, Nature, 2020; >500 citations).

Dr. Yeo has also leveraged his understanding of how protein-RNA complexes control molecular and cellular pathways to develop RNA-targeting therapeutics and to identify RBPs as candidate targets for neurodevelopmental disorders, neurodegeneration and cancer. Gene's lab also develops stem cell-based models of human disorders such as myotonic dystrophy, Huntington's disease and ALS/FTD to study how defects in RNA processing leads to pathological hallmarks as well as evaluate therapeutic paradigms developed in his lab. To illustrate, Gene's lab has systematically studied normal and mutant RBPs in neurodegeneration, and uncovered RBPs that condense into RNA granules during stress and demonstrated strategies to leverage these for therapeutic use in neurodegeneration (Markmiller et al, Cell, 2018; >600 citations; Fang et al, Neuron, 2019; Wheeler et al, Nature Methods, 2020). His lab also demonstrated in vivo RNA targeting with CRISPR/Cas proteins (Nelles et al, Cell, 2016;>500 citations) with proof of concept in repeat expansion disorders in mice and 3D brain organoid models (Batra et al, Cell, 2017; Batra et al, Nature Biomedical Engineering, 2020; Morelli et al, Science Translational Medicine, 2022; Morelli et al, Nature Neuroscience 2022). Work from the Yeo lab has been highlighted in Nature Methods and Nature Reviews Genetics as "Method to Watch" and featured as a top story in Discover magazine. These efforts have led to clinical programs to develop medicines for RNA-related diseases.

General biography
See: https://www.yeolab.com

<u>Short synopsis</u>

Gene Yeo PhD MBA is a Professor of Cellular and Molecular Medicine at the University of California San Diego (UCSD), Chief Scientific Advisor for the Sanford Laboratories for Innovative Medicines, Director of the Stanford Stem Cell Institute Innovation Center, a founding member of the Institute for Genomic Medicine and member of the UCSD Stem Cell Program and Moores Cancer Center. Dr. Yeo has a BSc in Chemical Engineering and a BA in Economics from the

University of Illinois, Urbana-Champaign, a Ph.D. in Computational Neuroscience from Massachusetts Institute of Technology, and an MBA from the UCSD Rady School of Management. Dr. Yeo serves as Co-Director of the Bioinformatics and Systems Biology Graduate Program, as Associate Director of a Genetics T32 training program at UCSD and as Chair of the Scientific Steering Committee of Sanford Consortium for Regenerative Medicine in La Jolla.

Gene is on the Editorial Boards of the journals Cell Reports, Cell Research and eLife, and on the Advisory Board of Review commons. Gene joined UCSD as an Assistant Professor in 2008, was promoted with tenure to Associate Professor in 2014 and to Professor in 2016. Gene was the inaugural Crick-Jacobs Fellow at the Salk Institute (2005-2008). Other awards include the Alfred P Sloan Fellowship in recognition of his work in computational molecular biology (2011), Alpha Chi Sigma-Zeta Chapter Krug Lecturer (2016), Singapore National Research Foundation Visiting Investigatorship Award (2017), the inaugural Early Career Award from the International RNA Society (2017), the Blavatnik National Award Finalist (2018 & 2019), San Diego Xconomy Awardee for 'Big Idea' (2019) and Highly Cited Researcher in Cross-Field category (2019, 2020, 2021, 2022), recognizing the world's most influential researchers of the past decade. Gene is also a Paul Allen Distinguished Investigator (2020) and received the 2021 Elisa Izaurralde Award for Innovation in Research, Teaching and Service from the RNA Society. Gene is a co-founder of biotech companies which includes Locanabio, Eclipse Bioinnovations, Enzerna, Proteona (acquired by Singleron), Trotana Therapeutics and Orbital Therapeutics. Gene serves or had served on the scientific advisory boards of the Allen Institute of Immunology, Locanabio, Eclipse Bioinnovations, Proteona, CircBio, Aquinnah, Cell Applications, Tecan, LGC, Sardona Therapeutics, Insitro, Trotana, Nooma, Ribometrix, Automera, Atomic.AI, AmberBio and IntronX. Gene is among the top 50 life science academic entrepreneurs as released by BIOS Beaker List. Gene is a senior advisor to Accelerator Life Sciences Partners. Gene's lab has current or previous support from the National Institute of Health, National Science Foundation, California Institute for Regenerative Medicine, TargetALS, ALS Foundation, Department of Defense, Myotonic Dystrophy Association, Myotonic Dystrophy Foundation, Chan-Zuckerberg Initiative, Takeda, Genentech and Roche.

Gene is the faculty founder of DASL (Diversity and Science Lecture Series, 2020) providing a voice for scientists to discuss diversity, equity and inclusion challenges and celebrate their scientific achievements (now funded by CZI). Gene is the founder of the SCREEN (San Diego Covid-19 Research Enterprise Network, 2020) and founding member of the SEARCH (San Diego Epidemiology and Research for Covid Health, 2020) alliances in San Diego. SCREEN had ~1000 scientist members in San Diego focusing on grassroots research coordination and community outreach. SEARCH is focused on epidemiology studies of the prevalence of the virus completing a 12000-person study of viral spread. Gene helped found the EXCITE (Expedited Covid Identification Environment) lab that performs Covid high-throughput testing at UCSD and served as a member of the Return-to-Learn steering committee at UCSD. Gene was a Sword of Honor recipient (the highest honor) in Officer Cadet School in 1999 and has served in the Singapore Navy as a Naval officer. Gene had completed 2 full Ironman-distance and multiple half-ironman-, olympic-, sprint-distance triathlons, full marathons and half-marathons, but now spends time rock climbing.

Press enquiries to The Executive Secretary at AE HQ, London

The Sydney Brenner Medal recognises an individual's substantial life-long scholarly achievement in the fields of Life Sciences, especially molecular and related sciences. The prize carries no financial benefit and is open to nominations of candidates who are members and non-members. Non-members also receive the honour of election to the Academy.
The Medal was established only in 2022 and the first prize will be awarded in 2023.

Information about the Brenner medal and a list of awardees can be found on our website at www.ae-info.org (specific URL at https://www.ae-info.org/ae/Acad_Main/News/News2/Inaugural%20Award%20of%20the%20Sydney%20Brenner%20Medal)