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THE PROTEIN SOCIETY ANNOUNCES ITS 2020 AWARD RECIPIENTS

CANYON COUNTRY, CA – The Protein Society, the premier international society dedicated to supporting protein research, announces the winners of the 2020 Protein Society Awards, which will be conferred at the World Conference on Protein Science 2020 (WCPS2020) in Sapporo, Japan, July 6 - 10. Plenary talks from select award recipients will take place throughout the 4.5-day event. The winners' scientific accomplishments, highlighted here as described by their nominators, demonstrate their lasting impact on protein science.

The Carl Brändén Award, sponsored by Rigaku Corporation, honors an outstanding protein scientist who has also made exceptional contributions in the areas of education and/or service to the field. The 2020 recipient of this award is **Professor Karen Fleming** (Johns Hopkins University). Professor Karen Fleming is a pioneer and leader in the field of membrane protein folding. Her contributions include making some of the first rigorous thermodynamic measurements for membrane protein folding, introducing the hydrophobicity scale that is now most widely used to describe amino-acid side chain partitioning into bilayers, and elucidating the thermodynamic principles governing the coupled trafficking and folding of Gram-negative beta-barrel membrane proteins. Dr. Fleming has also tirelessly served the scientific community, devoting major service to scientific societies and co-founding (with Stein and Moore awardee James Bowie) the Gordon Research Conference on Membrane Protein Folding. Dr. Fleming is also an eloquent and outspoken advocate for women in science, with a particular passion for illuminating and neutralizing hidden biases commonly held by both men and women.

The Christian B. Anfinsen Award, sponsored by The Protein Society, recognizes technological achievement or significant methodological advances in the field of protein science. The recipient of this award in 2020 is **Professor Stephen Sligar** (University of Illinois at Urbana-Champaign). Dr. Sligar's academic career has featured the discovery, development, and use of chemical and biophysical tools to understand fundamental problems in protein biochemistry and biophysics. Of relevance to the Anfinsen Award is his development of nanodiscs, which are patches of lipid membrane stabilized by a "belt" of membrane scaffolding proteins. By using nanodiscs, signaling proteins and macromolecular complexes that rely on a membrane can be readily studied in a native bilayer that is solubilized in an aqueous environment. Dr. Sligar's commitment to wide dissemination of the nanodisc technology

has led to its use by hundreds of laboratories, amplifying the impact of his advances and broadly benefitting the field of protein science.

The Dorothy Crowfoot Hodgkin Award, sponsored by Genentech, is granted in recognition of exceptional contributions in protein science which profoundly influence our understanding of biology. The 2020 recipient is **Professor Catherine Drennan** (Massachusetts Institute of Technology). Dr. Drennan has made enormous contributions by solving high-resolution structures of proteins and protein complexes that enhance our understanding of the biology of metalloproteins. Dorothy Crowfoot Hodgkin was famous for using X-ray crystallography to determine the structure of Vitamin B12, and Dr. Drennan has provided monumental insights into the structure and function of proteins that bind to B12. Dr. Drennan is known for going beyond single proteins and elucidating structures that illuminate entire pathways, capturing multiple snapshots of enzymes as they proceed through their reaction cycles. Among her many notable accomplishments, Dr. Drennan determined the first structure of the cobalamin-dependent ribonucleotide reductase, one of the three enzymes that catalyze the final step in production of deoxyribonucleotides in all organisms. Dr. Drennan's insights are solidly etched into textbooks and the fabric of our field. Drennan is also an outstanding and widely recognized educator and a tireless advocate for inclusion and equity in science.

The Emil Thomas Kaiser Award, sponsored by The Protein Society, recognizes a recent, highly significant contribution to the application of chemistry in the study of proteins. The 2020 recipient is **Professor Shuguang Zhang** (Massachusetts Institute of Technology). Dr. Zhang is widely seen as a founder of the field of peptide nanomaterials. He discovered a class of ionic self-complementary peptides that undergo molecular self-assembly to form well-ordered nanofibers and membranous structures. Dr. Zhang went on to show many important applications of this class of peptide materials as carriers for controlled drug delivery and as the building blocks of scaffolds for tissue regeneration and accelerated wound healing. He was at the forefront of showing that 3-D cell culture offers a more realistic micro- and local-environment than 2-D culture, and he demonstrated the utility of 3-D culture in basic cell biology, tumor biology, high-content drug screening, and regenerative medicine. His contributions have transformed our basic understanding of the biochemical basis of molecular self-assembly and its application in the field of biomedical engineering.

The Hans Neurath Award, sponsored by The Hans Neurath Foundation, honors individuals who have made a recent contribution of exceptional merit to basic protein research. In 2020, the Hans Neurath Awardee is **Professor Martin Gruebele** (University of Illinois at Urbana-Champaign). Dr. Gruebele is widely known for introducing the advanced technology of flash heating and ultra fast spectroscopy to study protein folding. His work showed that early stages of protein folding, including initial collapse and formation of secondary structures, can occur in microseconds. These advances allowed the first direct comparisons between folding rates determined experimentally

and folding rates estimated from simulations. More recently, Dr. Gruebele showed that fast folding can be studied in live cells. His work established that in vivo folding, while following similar physicochemical rules as in vitro folding, is significantly modulated by the different cellular environments in different parts of the cell. Dr. Gruebele's work brings the highest level of experimental innovation, experimental precision, and conceptual rigor to protein biophysics.

The Stein & Moore Award, sponsored by The Protein Society, is named for Nobel laureates Dr. William Stein and Dr. Stanford Moore. The award is given to recognize eminent leaders in protein science who have made sustained high impact research contributions to the field. The 2020 recipient is **Professor James Bowie** (University of California, Los Angeles). Dr. Bowie has shown great creativity and rigor in astoundingly diverse areas of protein science. His 1991 Science paper "A method to identify protein sequences that fold into a known three-dimensional structure" introduced the important idea of protein structure prediction by threading. In the area of membrane protein science, he has contributed novel methods to quantify protein stability, to measure protein-protein interactions in lipid bilayers, and to crystallize membrane proteins in bicelles. He showed that internal hydrogen bonds provide only marginal stabilization of membrane proteins and that membrane proteins can have high kinetic stability. In the area of synthetic biology, Dr. Bowie has developed in vitro systems that enable the continuous production of biofuels and other molecules in cell-free systems of enzymes with self-regenerating cofactors. Dr. Bowie has also been a dedicated and generous citizen of the scientific community, where he has served in important roles including as President of The Protein Society and co-founder of the Gordon Research Conference on Membrane Protein Folding (with Carl Brändén awardee Karen Fleming).

The Protein Science Young Investigator Award, sponsored by Wiley, recognizes a scientist within the first 8 years of an independent career who has made an important contribution to the study of proteins. The 2020 recipient is **Professor Mohammad (Mo) Seyedsayamdost** (Princeton University). Dr. Seyedsayamdost has conducted pioneering work on novel biochemical pathways. He uses a creative combination of bioinformatics and chemical genetics to activate cryptic biosynthetic pathways in microbial systems and determine their products. This has led him to discover the vast – and previously overlooked – biosynthetic potential of many bacteria and to determine the effects that bacterially produced molecules have on other microbes. Pathways that he has discovered produce previously unknown natural products using reactions catalyzed by hitherto uncharacterized proteins. His insights are already having a substantial impact on protein science, as these pathways include novel transformations catalyzed by newly discovered metalloenzymes.

Delegates, exhibitors, sponsors, and the press can learn more about the World Conference on Protein Science (WCPS2020) on The Protein Society website <http://www.proteinsociety.org>.

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The Protein Society is the leading international Society devoted to furthering research and development in protein science. Founded in 1986, the purpose of the Society is to provide international forums to facilitate communication, cooperation, and collaboration regarding all aspects of the study of proteins. In support of these goals, the Society publishes *Protein Science*, the premier journal in the field, hosts an annual international symposium, and facilitates the education of early-career protein scientists across all lines of discipline. The Protein Society members represent a wide spectrum of academic, industry, governmental, and non-profit institutions from more than 40 countries around the world. Media inquiries can be directed to Raluca Cadar, Executive Director at 844.377.6834.