

2012 Board of Trustees' Award for Outstanding Research and Creative Scholarship Recipient

José Argüello

Professor José Argüello is internationally recognized for his research work in the general area of metal transport across membranes. José studies the structure and function of proteins that transport heavy metals such as copper, zinc, cobalt, and iron across cell membranes. These metals are micronutrients playing fundamental functions such as transport of oxygen in the blood, synthesis of sugars in plants, and the transcription of DNA in all living organisms. Because of the importance of these basic biological functions, a better understanding of the mechanisms of heavy metal transport has implications for the treatment of a host of diseases, for human and animal nutrition, and for the bioremediation of heavy metal pollution. He has performed high impact research in this field during his 15-year tenure at WPI and since he started his research career in biochemistry in 1985.

The first measure in outstanding research and creative scholarship is the ability to produce and sustain high quality research that impacts the growth of the field. José has been able to establish himself in his area of research and to expand his research into new discoveries. One nominator states that José has the ability to expand his research, "from ion transduction mechanisms of Na⁺/KATPs [sodium-potassium pump], to ion homeostasis and transport mechanism of heavy metals ATPs [enzymes], and now into identifying the role of metal ions in disease progression such as tuberculosis". José has been able to publish a number of papers in several areas and he has been able to demonstrate high quality in these publications by receiving noticeable citations. He has contributed to 69 journal articles that have received over 1270 citations. Citations are extremely instrumental in establishing the reputation of the Institution in research and creative scholarship. Another popular measure for productivity and impact of published work of a researcher is the H-index. According to one of the nominators familiar with the citation index in the Biochemistry, "His [José's] H-index, a measure of his impact on the field, is very high 21!" There are additional measures that distinguish José's research work, one nominator states "besides the prolific and steady record in publication in top ranked peer-reviewed journals, I noticed the extraordinary number of invited presentations, some of which are at the premier scientific meetings in the field". Considering all these facts, in simple words as another nominator states "in understanding how photosynthetic proteins coordinate metals" "he [José] seems to be doing the best work in the field".

A second measure in outstanding research and scholarship is the ability to attract funding for research and the ability to nurture others in the Institution to develop funded research programs. As one of the nominators states, "José has extensive

knowledge of the grantmanship". "He has been funded by variety of agencies such as the National Science Foundation, National Institute of Health, American Heart Association and the US Department of Agriculture" and "while some individuals might keep this knowledge to themselves, José is always happy to help spread his knowledge of funding agencies". Another nominator states "José arrived at WPI in 1986 with research funding and has maintained his funding ever since". He has been able to attract close to \$4M of funding for more than ten research projects and currently he is the principal investigator of three projects for a total budget of over \$1.6M. José has also been able to divert parts of his research funding towards undergraduate education that has been highly valued in WPI community for many years.

A third measure in evaluation of outstanding research and creative scholarship is the outside visibility and recognition through services to the research community. These activities are very instrumental in elevating the reputation of the Institution in the research community. In 2009 José was selected to serve a one-year appointment as a program director at the National Science Foundation, Division of Molecular and Cellular Biosciences within the Directorate for Biological Sciences. Since last July he has been appointed to a four-year term on a National Institutes of Health study section to participate in the review and evaluation of research proposals aimed at understanding the nature of biological phenomena and applying that knowledge to enhance human health. Recently, he has been appointed as the editor of the prestigious flagship publication in the Biochemistry, The Journal of Biological Chemistry. The quality of José's performance in this type of appointments is best exemplified by the comments of one of the nominators describing José's work at NSF: "Because of his intellect and energy, José had great success not only within the Division of Molecular and Cellular Biochemistry, but he was also able to successfully develop synergetic funding partnership with other Divisions, notably, Division of Chemistry" and continues with "Overall, José was generally very well-liked and well-respected at NSF for the many assets that he possesses ranging from his understanding of the biochemical and biophysical concepts to conversations of intrinsically difficult funding decisions to his views and efforts onto improve science education in the country."

Professor Arguello has strongly exemplified the qualities of scholar, researcher, and teacher for which we honor him with this award and by which he has brought enduring recognition and acclaim to this university.

In recognition of his significant contributions to the field of Biochemistry, especially his contributions and far-reaching impact on the development of metal transport across membranes, it is with great pride that Professor José Argüello is named the

recipient of the 2012 Board of Trustees' Award for Outstanding Research and Creative Scholarship.