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ERA-NET PathoGenoMics Announces Winners of the Ph.D. Award for 2011

Geneva, Switzerland June 29, 2011 – ERA-NET PathoGenoMics, a project funded by the European Commission aimed at advancing transnational research in the field of pathogenomics, announced today the winners of the Ph.D. Award 2011 for the most outstanding Ph.D. theses in the field of genome research on human-pathogenic microorganisms (bacteria and fungi). The three winners, who were awarded 2000 € each, are Dr. Roland Christian Arnold from the Technical University of Munich Germany; Dr. Enrique Calvo Alcocer from the Universidad Autónoma de Madrid, Spain; and Dr. Alexandra Isabel Cardoso Nunes from the New University of Lisbon, Portugal. The award ceremony took place at the 4th FEMS Congress of European Microbiologists held in Geneva, Switzerland and was presented by Professor Eliora Ron from Tel-Aviv University, Israel, the former chair of FEMS.

Dr. Bülent Genc, Coordinator, ERA-NET PathoGenoMics said, "We would like to congratulate the winners of the sixth Ph.D. award, who have all made considerable contribution to the scientific endeavor of understanding, and ultimately controlling pathogen infections. The recent *E. coli* epidemic in Germany has highlighted the importance of understanding exactly what turns an otherwise harmless microbe into a serious threat, and the winners have all focused on the molecular mechanisms underlying pathogenicity. I am sure that these young scientists will continue to excel in the future, and I would like to also thank the other candidates, who have all performed research of the highest level."

About Pathogenomics

Pathogen infections are among the leading causes for disease and mortality throughout the globe. As more pathogenic strains develop resistance to existing drugs, the race for finding novel anti-bacterial and anti-fungal drugs becomes ever more urgent. The field of pathogenomics utilizes data acquired by genomics and related methods in order to better characterize pathogenic bacteria and fungi, interactions between different strains, and interactions between the pathogen and the human host. Pathogenomics has already been invaluable in understanding pathogenic evolution and diversity, in characterizing novel virulence factors, and in paving the way towards designing new diagnostic tests and drugs that will help keep humankind abreast of ever-changing pathogens.

About the Chosen Ph.D. Theses

Dr. Arnold investigated the mechanisms underlying the ability of bacteria to infect and gain control over host cells. He developed novel computational tools to identify special proteins that are involved in actively transporting bacterial proteins into eukaryotic host cells. In addition, Dr. Arnold employed a systems biology approach to analyze and characterize protein interaction networks of virulence related genes in *Chlamydia*. These protein interaction networks also gave insights into the evolution of cellular function due to host adaptation and have been fruitful for characterizing unknown proteins.

Dr. Calvo has identified novel surface proteins covalently bound to the peptidoglycan that were predicted upon genome sequencing of the important Gram-positive bacterial pathogen *Listeria monocytogenes* and the non-pathogenic species of the same genus *L. innocua*. In order to achieve this, he analyzed the cell wall proteome in various stages of the bacterial life cycle using state-of-the-art proteomics, including gel-free strategies involving multidimensional chromatography on peptide mixtures. By using bacterial mutants defective in some of these surface proteins, DR. Calvo also investigated the regulatory processes controlling the production and anchoring of this specialized set of proteins.

Dr. Nunes devoted her efforts to understanding the pathogenicity of *Chlamydia*, an obligate intracellular organism that is very challenging to study. She focused on several pivotal *Chlamydia* proteins and used sophisticated bioinformatics and statistical tools for analyzing the data. One of these proteins is an important vaccine target, and Dr. Nunes evaluated its evolutionary dynamics using a large geographic distribution of clinical samples. Her findings are important in the field and contribute new knowledge to our understanding of the evolutionary immunogenesis of the organism.

About ERA-NET PathoGenoMics

ERA-NET PathoGenoMics**,** a project funded by the European Commission, has been set up to establish sustained co-operation between national funding bodies and to co-ordinate their genome-based research programs on human-pathogenic microorganisms. The participating ERA-NET PathoGenoMics partner countries and funding institutions include: Austria, Federal Ministry for Science and Research (BMWF) and The Austrian Science Fund (FWF); Finland, Academy of Finland (AKA); France, Institut Pasteur (IP), and The National Agency for Research (ANR); Germany, Federal Ministry of Education and Resarch (BMBF) and Project Management Juelich (PTJ); Hungary, Hungarian Academy of Science (HAS) and Hungarian Scientific Research Fund (OTKA); Israel, The Chief Scientist Office, Israeli Ministry of Health (CSO-MOH); Portugal, The Science and Technology Foundation (FCT); Slovenia, Ministry of Higher Education, Science and Technology (MHEST); Spain, Ministry of Science and Innovation. For further information, please visit www.pathogenomics-era.net

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