Expert in Fungal Pathogenesis Joins the Institute for Genome Sciences at the University of Maryland School of Medicine

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Vincent Bruno, a leading researcher in fungal pathogenesis, has joined the Institute for Genome Sciences (IGS) at the University of Maryland School of Medicine (UMSOM) as Assistant Professor in the Department of Microbiology and Immunology.

Bruno's research focus is *Candida albicans*, the most invasive fungal pathogen that affects humans. *C. albicans* is one of the many organisms that live in the human mouth and gastrorintestinal tract, and usually is in balance with normal flora. Oropharyngeal candidiasis, also known as thrush, is a condition when the fungus becomes invasive and overgrown in the human host. *C. albicans* can also get into the blood stream and cause disseminated candidiasis which can be deadly for immunocompromised individuals such as people who are HIV-positive, or undergoing chemotherapy or an organ/bone transplant. *C. albicans* is very good at developing resistance to antifungal drugs and reacts to environmental cues to become more invasive in those individuals, which makes it difficult to treat immunocompromised patients effectively.

Bruno is a researcher in the new area of "pathogenomics" which is the analysis at the genomic level of the interaction between pathogenic microbes and their hosts. During his post-doctoral research, Bruno was able to discover 600 new genes in the *Candida albicans* genome, publishing a landmark paper in 2010, "Comprehensive annotation of the transcriptome of the human fungal pathogen *Candida albicans* using RNA-seq" in the journal *Genome Research*.

Bruno worked with Dr. Michael Snyder at Yale University for his post-doctoral research, applying transcriptomics and large-scale genome sequencing to his research on the *Candida albicans*. Transcriptomics creates a comprehensive picture of changes in gene expression of pathogenic fungi during host-pathogen interactions or other environmental challenges. By identifying and characterizing specific genes in *C. albicans*, researchers like Bruno are contributing to a better understanding of the mechanisms of infection and fostering the development of new diagnostics, therapeutics and vaccines.

Bruno received his Ph.D. from Columbia University, and his undergraduate degree from Carnegie Mellon University.

"Dr. Bruno is integral to our Institute's work applying large-scale genomic tools to fungal pathogenesis," said Claire Fraser-Liggett, PhD, Director of the Institute for Genome Sciences. "We are excited to have him join our Institute."

"This Institute is part of a multi-disciplinary scientific research community, including the UMB Medical, Dental and Pharmacy Schools and their clinical research, which gives me unparalleled collaborative opportunities for new approaches to apply genomics to the study of fungal pathogenesis ," said Vincent Bruno.

For more information about Dr. Bruno and his research, see http://www.igs.umaryland.edu/people_faculty.php.

About IGS

The Institute for Genome Sciences (IGS) at the University of Maryland School of Medicine is an international research center dedicated to advancing the use of genomics to improve healthcare. Led by Dr. Claire Fraser-

Liggett, a preeminent genome scientist and microbiologist, IGS is located in a 10-acre BioPark on the University of Baltimore's campus in downtown Baltimore. IGS scientists integrate genomics, bioinformatics and metagenomics into biomedical research. For more information, see www.igs.umaryland.edu.