

Weekly Colloquium, Spring 2018

Problems in the Biology of Complex Diseases

(CMM, MCB, GENE, IMB, PCOL 595H)

Friday, 9-11, Keating/Bio5 103

Human complex diseases (CD) such as asthma, cancer, cardiovascular and neurodegenerative diseases, are major biomedical challenges, because they are common but difficult to decipher. The complexity of these diseases is reflected by their phenotypic heterogeneity and likely results from intricate interactions among genetic, environmental and developmental factors that modify disease susceptibility and severity.

Understanding complex diseases is urgent, because these conditions impose a burden on our society. Yet, this goal cannot be achieved by isolated research disciplines. Rather, it requires a novel paradigm that successfully integrates basic and clinical research across multiple fields and translates mechanisms into phenotypes and phenotypes into treatments. This novel paradigm provides the underpinning for this Colloquium.

The Colloquium features speakers who are nationally and internationally renowned for their work on environmental biology, immunological and clinical phenotyping, microbiota, developmental biology, epigenetics, genetic epidemiology, population genetics, functional genomics of human and animal models. The theme and vision of the Colloquium are unique in that *the discussion focuses particularly on the biological components shared by ostensibly distinct complex diseases (for instance, asthma, neurodegenerative and cardiovascular diseases)*. The underlying assumption, supported by much emerging evidence, is that these shared components are features that define the mechanistic architecture of complex diseases as a group. The goal of the Colloquium is to provide a platform that will catalyze broad, expert discussions on these foundational topics, thereby fostering the emergence of a new experimental and conceptual paradigm in complex disease biology.

WHEN	WHERE	WHO	WHAT
Jan 12	BIO5 103, 9-11 am	Donata Vercelli (UA)	Introduction and Overview
Jan 19	BIO5 103, 9-11 am	Xingnan Li (UA)	Introduction to complex disease genetics
Jan 26	BIO5 103, 9-11 am	Debbie Meyers (UA)	Life after GWAS
Feb 2	BIO5 103, 9-11 am	Eugene Bleecker (UA)	Pharmacogenetics and pharmacogenomics
Feb 9	BIO5 103, 9-11 am	Carole Ober (U.Chicago)	17q Asthma Locus: History, Bias and the Search for Truth
Feb 16	BIO5 103, 9-11 am	Paul Nelson (UA)	Intercellular Competition and the Inevitability of Multicellular Aging
Feb 23	BIO5 103, 9-11 am	Casey Romanoski (UA)	Mechanisms of gene regulation
Mar 2	BIO5 103, 9-11 am	Stefano Guerra (UA)	Biomarkers
Mar 9		<i>Spring Break</i>	<i>no class</i>
Mar 16	BIO5 103, 9-11 am	Darren Cusanovich (U. Washington) Donata Vercelli (UA)	Single cell approaches to chromatin regulation of gene expression What we have learnt so far (partial wrap-up)
Mar 23	BIO5 103, 9-11 am	Jonathan Pritchard (Stanford)	Omnigenic diseases
Mar 30	BIO5 103, 9-11 am	Fernando Martinez (UA)	Thoughts on complex disease phenotypes and susceptibility
Apr 6	BIO5 103, 9-11 am	Raina Maier (UA)	The environmental microbiome
Apr 13	BIO5 103, 9-11 am	Greg Caporaso (NAU)	Microbiota in the built environment
Apr 20	BIO5 103, 9-11 am	Susan Lynch (UCSF)	The human microbiome in health and disease
Apr 27	BIO5 103, 9-11 am	Donata Vercelli (UA)	Final wrap-up

For further information, please contact Donata Vercelli, MD, Colloquium Organizer (donata@email.arizona.edu)