

Problems in the Biology of Complex Diseases

(CBA/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 13	BIO5 103, 9-11 am	Donata Vercelli (UA)	Introduction and overview
Jan 20	BIO5 103, 9-11 am	Walt Klimecki (UA)	Complex disease (CD) genetics
Jan 27+	<u>BIO5 247, 9-11 am</u>	Stefano Guerra (UA)	Biomarkers for complex diseases
Feb 3	BIO5 103, 9-11 am	Linda Restifo (UA)	Neurogenetic disorders span the CD spectrum
Feb 10	BIO5 103, 9-11 am	Deborah Meyers (Wake Forest)	GWAS in CD
Feb 17	BIO5 103, 9-11 am	Kathleen Barnes (Johns Hopkins)	Rare variants and CD susceptibility
Feb 21++	<u>BIO5 103, 4-6 pm</u>	Erika Von Mutius (U. Munich)	Environmental determinants of protection from CD
Feb 24	BIO5 103, 9-11 am	Carole Ober (U Chicago)	Studies in founder populations
Mar 2		<i>no class</i>	
Mar 9+	<u>MRB 102, 9-11 am</u>	Mark Ansel (UCSF)	Micro RNA-mediated regulatory processes
Mar 16		<i>Spring Break</i>	<i>No class</i>
Mar 23	BIO5 103, 9-11 am	Jeff Molkentin (HHMI/Cincinnati)	ER Stress Pathway for Heart Failure Therapy
Mar 30	BIO5 103, 9-11 am	Raina Maier (UA)	Understanding the microbiome
Apr 6	BIO5 103, 9-11 am	Donata Vercelli (UA)	Epigenetics and the environment
Apr 13	BIO5 103, 9-11 am	Fernando Martinez (UA)	Gene-environment interactions
Apr 20	BIO5 103, 9-11 am	Jannine Stempel (UA)	Induced pluripotent stem cell-based models
Apr 27	BIO5 103, 9-11 am	Donata Vercelli (UA)	Wrap-up

+ note location change

++ note date/time change