Proteomics of Altered Signaling in Addiction

- **The behavioral changes that accompany drug addiction are believed to result from both short and long term adaptive changes in the neurochemistry of brain reward centers. To date, molecular studies have elucidated some of the transcriptional changes that occur in the addicted brain. However, little if anything is known about the effects of drugs of abuse on the neuronal proteome.**

- **The major goal of the Yale/NIDA Neuroproteomics Center is to bring together strong programs in proteomics, in drug abuse research, and in various aspects of neurobiology, to characterize using proteomic methods basic aspects of brain function and to use these methods and knowledge to identify adaptive changes in protein expression and regulation that occur in response to exposure to drugs of abuse.**

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- **The Center will improve existing technologies as well as develop new proteomics technologies that can be applied to neurobiological questions, particularly relevant to the actions of drugs of abuse.**

- **The Center will provide training in proteomics technologies.**

- **The Center will encourage collaboration between Center Investigators who might otherwise not interact, and to try to bring investigators with no prior experience in drug abuse research into the field of drug abuse.**

NIDA Center Investigators

Yale - CNNR, Physiology, Child Study	Yale - Psychiatry	Rockefeller, Stanford, Chicago, UT Southwestern
Pietro DeCamilli	Ralph DeLeone	Paul Greengard
Stephen Strittmatter	Angus Nairn	Robert Malenka
Thomas Biederer	Marina Picciotto	William Green
Sreeganga Chandra	Sam Sathyanesan	James Bibb
Susumo Tomita	Arthur Simen	
Paul Lombroso	Rajita Sinha	
	Jane Taylor	
	Zoron Zimolo	

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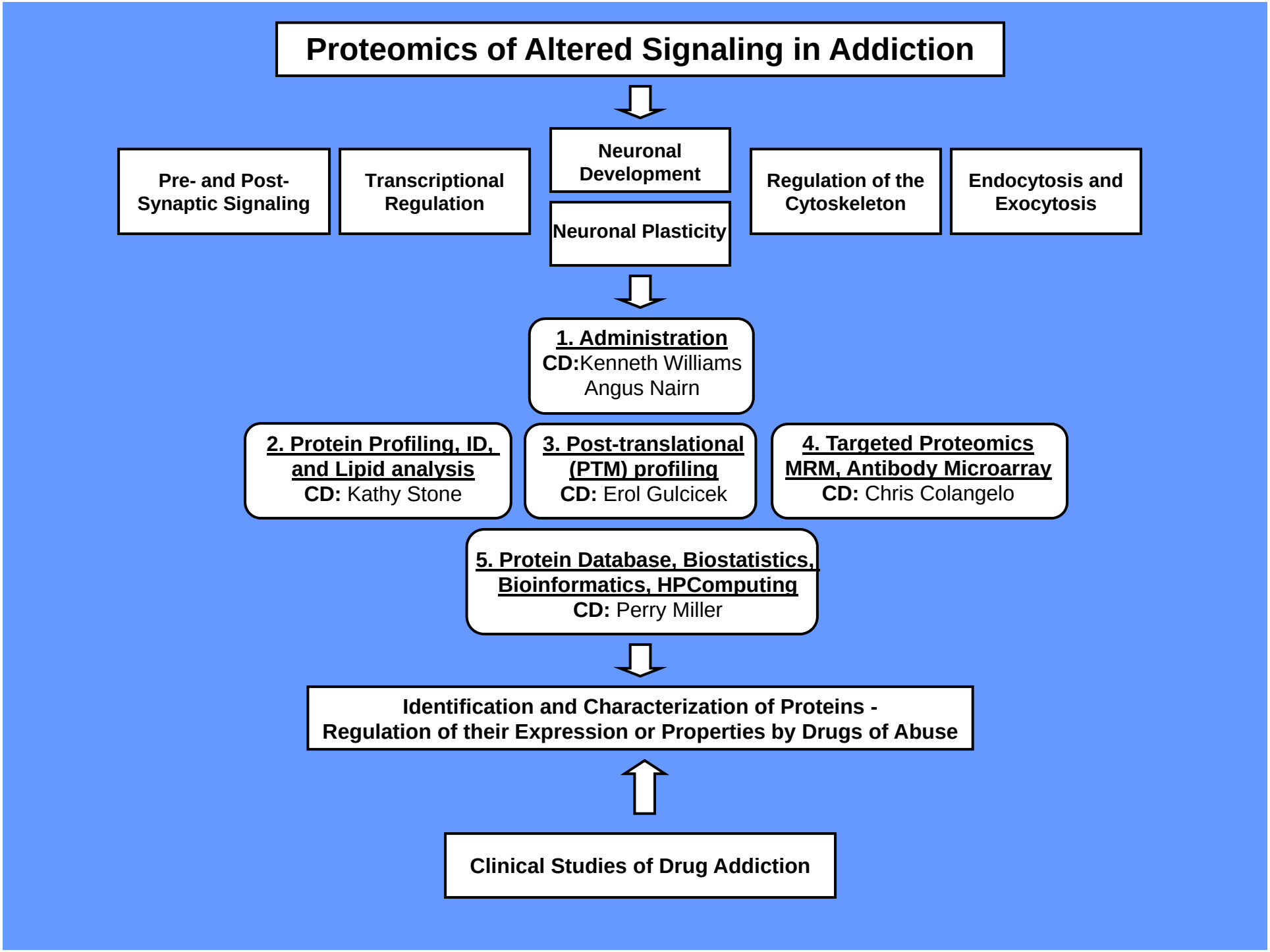
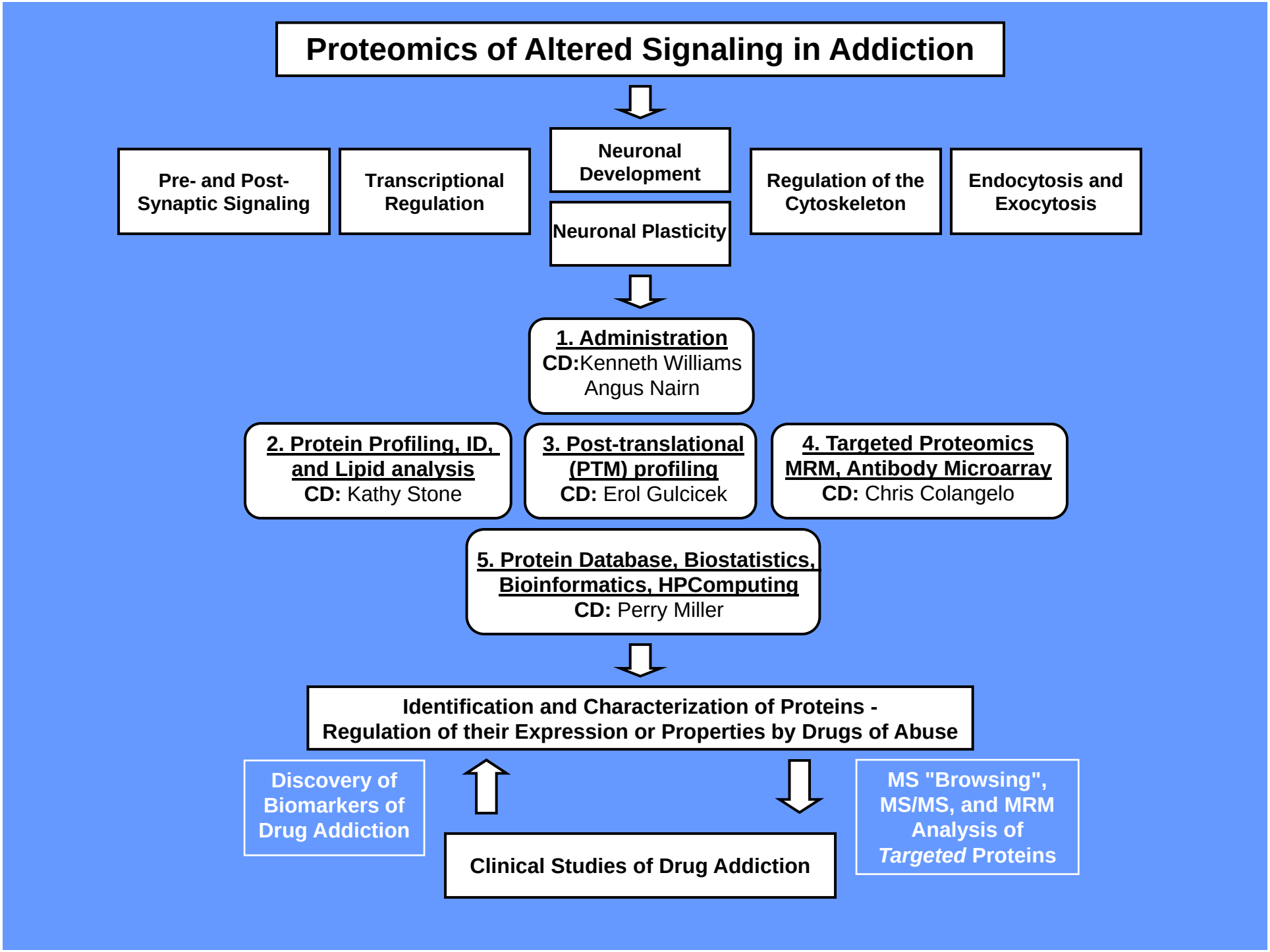
Paul Lombroso	Rajita Sinha	Maria Morabito
Len Kaczmarek	Jane Taylor	
Dan Wu	Zoron Zimolo	
Richard Lifton		


Proteomics of Altered Signaling in Addiction
Pre- and Post-Synaptic Signaling
Transcriptional Regulation
Neuronal Development
Neuronal Plasticity
Regulation of the Cytoskeleton
Endocytosis and Exocytosis
1. Administration
CD:Kenneth Williams
Angus Nairn
2. Protein Profiling, ID, and Lipid analysis
CD: Kathy Stone
3. Post-translational (PTM) profiling
CD: Erol Gulcicek
4. Targeted Proteomics MRM, Antibody Microarray
CD: Chris Colangelo
5. Protein Database, Biostatistics, Bioinformatics, HPComputing
CD: Perry Miller
Identification and Characterization of Proteins -
Regulation of their Expression or Properties by Drugs of Abuse
Clinical Studies of Drug Addiction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Identification and Characterization of Proteins -
Regulation of their Expression or Properties by Drugs of Abuse
Discovery of Biomarkers of Drug Addiction
Clinical Studies of Drug Addiction
MS "Browsing", MS/MS, and MRM Analysis of *Targeted* Proteins

Proteomics of Altered Signaling in Addiction

Neuronal Development
Thomas Biederer (2,5)
Sreeganga Chandra (2,5)
Dan Wu (2,5)
Richard Lifton (2,3,4,5)

Regulation of the Cytoskeleton
Angus Nairn (2,3,4,5)
Elizabeth Eipper (2,3,4,5)
Pietro DeCamilli (2,3,4,5)
Stephen Strittmatter (2,5)

Pre- and Post-Synaptic Signaling
Paul Greengard (2,3,4)
Angus Nairn (2,3,4,5)
Paul Lombroso (2,3,5)
Ralph DeLeone (2,3,5)
William Green (3,5)
Len Kaczmarek (3,5)
Pietro DeCamilli (2,3,4,5)
James Bibb (2,3,5)
Maria Morabito (2,5)

Neuronal Plasticity
Robert Malenka (3,5)
Susumo Tomita (3,5)
Elizabeth Eipper (2,3,4,5)
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Jane Taylor (2,3,4,5)
Marina Picciotto (2,3,4,5)
Angus Nairn (2,3,4,5)

Transcriptional Regulation
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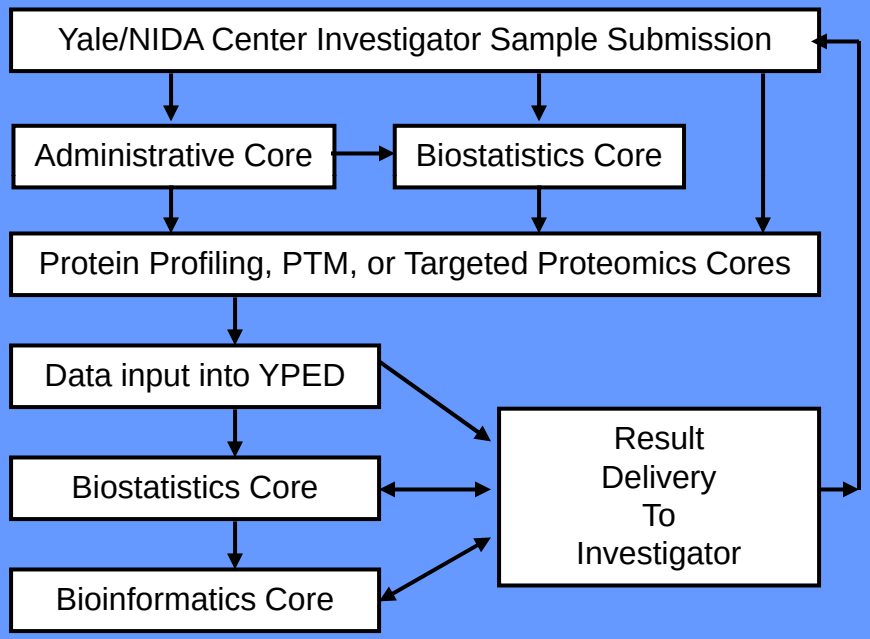
Angus Nairn (2,3,4,5)
Sam Sathyanesan (2,3,5)

Endocytosis and Exocytosis
Pietro DeCamilli (2,3,4,5)
Susuma Tomita (3,5)

Clinical Studies of Drug Addiction
Rajita Sinha (2,4,5)
Zoron Zimolo (2,4,5)

General procedure for initiation of projects and analysis of samples



Collaborations between Center Investigators