



## Speakers

Martien Kas, PhD

Giacomo Salvatore, MD

Wayne Drevets, MD

Carol Tamminga, MD

Vikas Mohan Sharma, MD

Michael Davis, MD, PhD

Lorenzo Guizzaro, MD

Andrew Krystal, MD

Uma Vaidyanathan, PhD

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Submit Questions for speakers in  
Q&A feature

# Research Domain Criteria (RDoC) Initiative: An Overview

Uma Vaidyanathan, Ph. D.

ISCTM 17<sup>th</sup> Annual Scientific Meeting

April 6, 2021



No disclosures



National Institute  
of Mental Health

# NIMH RDoC Workgroup Members

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- Bruce Cuthbert (Head), NIMH\*
- Sarah Morris (Assoc Head), NIMH\*
- Mindy Chai, NIMH
- Michele Ferrante, NIMH
- Rebecca Garcia, NIMH
- Marjorie Garvey, NIMH
- Andrew Hooper, NIMH
- Dawn Morales, NIMH
- Eric Murphy, NIMH
- Jenni Pacheco, NIMH\*
- Daniel Pine, NIMH
- Syed Rizvi, NIMH\*
- Matt Rudorfer, NIMH
- Janine Simmons, NIA
- Uma Vaidyanathan, NIMH\*

## External Consultants:

- Will Carpenter, Univ of Maryland
- Charles Sanislow, Wesleyan University

\*Member of the RDoC Unit

# Why RDoC? ~ ~ Scientific Problems with Diagnoses

- Current diagnostic systems (DSM and ICD) remain based on clinical symptoms and signs
- Devised for reliability, at the expense of validity
- Broad syndromes: heterogeneity, co-morbidity, NOS diagnoses
- Disorders are dimensional, not “healthy-sick”
- Failure to establish “biomarkers”
- *PROBLEM: Diagnostic categories have driven the entire research & clinical systems (grant review, journals, trials, regulatory approvals)*

# Why RDoC? ~ Challenges in industry in the neuroscience space

## The Great Neuro-Pipeline Brain Drain – Why Big Pharma Hasn't Given Up On CNS Disorders

- *Drug Discovery World*, 14(4), 9-16, October 15, 2013.

## As Big Pharma Abandons Neuroscience, Can Biotech Provide Answers?

- <https://www.labiotech.eu/brain/neuroscience-big-pharma-biotech/>



CLARA RODRÍGUEZ FERNÁNDEZ - 09/12/2019 8 MINS - BRAIN , IN DEPTH

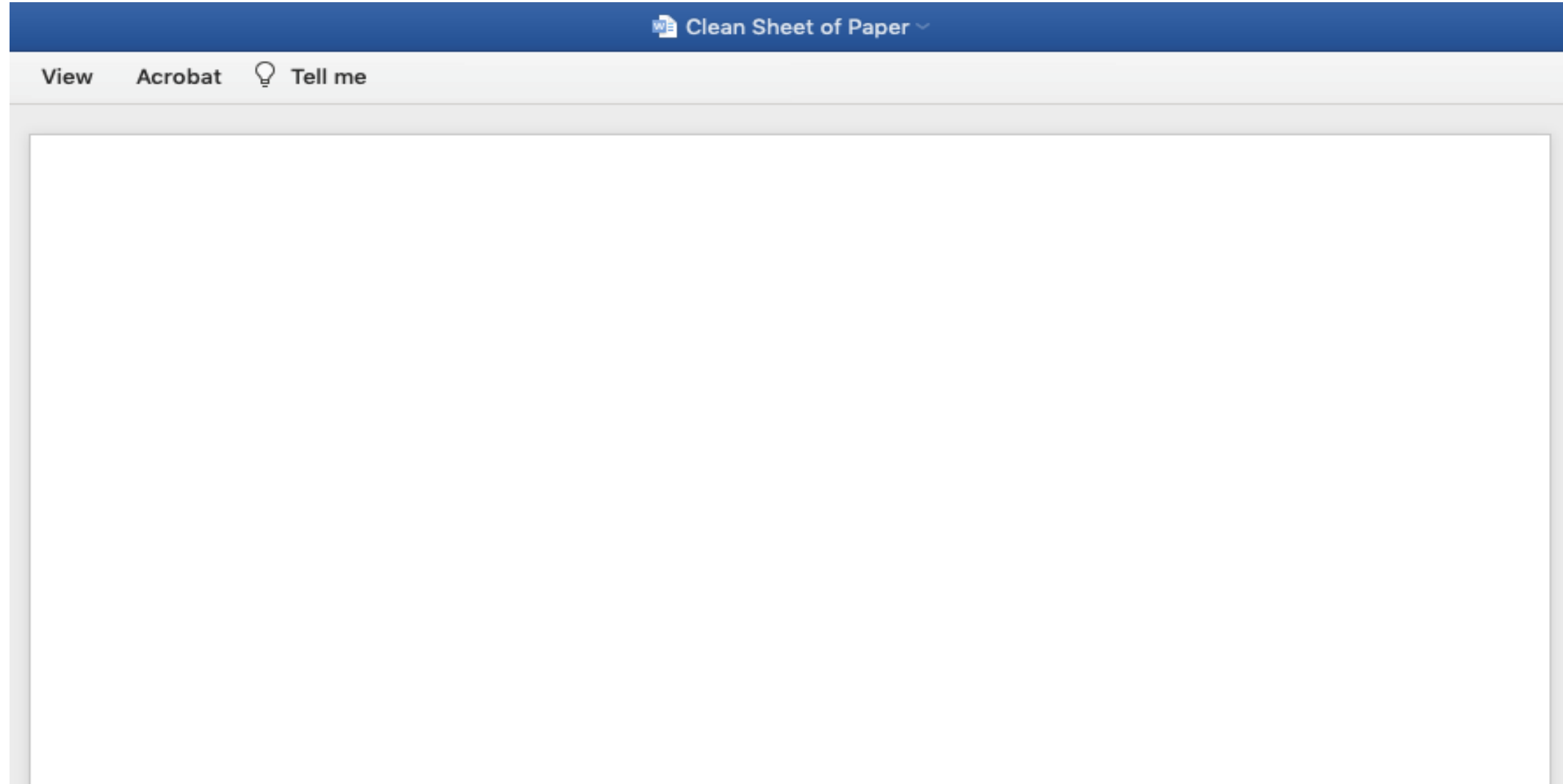
## Big pharma backed away from brain drugs. Is a return in sight?

Many large drugmakers no longer invest heavily in neuroscience. Some biotech executives expect that to change.

<https://www.biopharmadive.com/news/pharma-neuroscience-retreat-return-brain-drugs/570250/>

By [Jacob Bell](#) • January 29, 2020

# New Approaches: Where would we start?



# RDoC Approach: What do we know so far?

Clean Sheet of Paper

View Acrobat Tell me

## What do we know about psychopathology now?

- Neurodevelopmental trajectories
- Bidirectional interactions with environment (good and bad)
- Psychopathology: dimensional
- Must measure and relate many aspects (psychological, biological, self-reports, behavior)

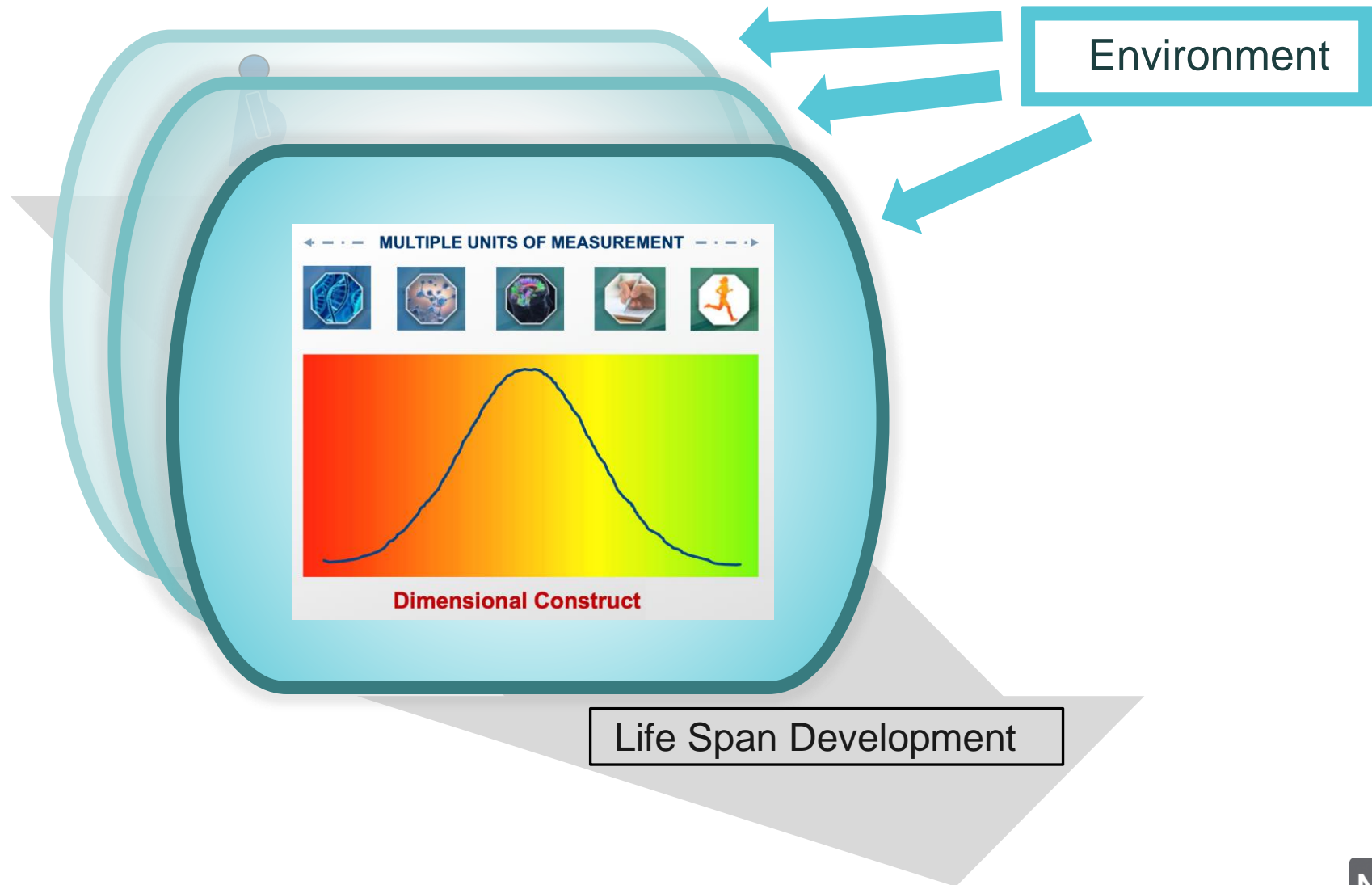
# RDoC: A Set of Principles for Research

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- Framework with a set of principles for conceptualizing mental disorders
- Involves using constructs:
  - a.) based on both biology and behavior,
  - b.) measured dimensionally,
  - c.) integrated across units of analyses (or methodologies),
  - d.) homogeneous within/across disorder(s)
- A very open framework – approach with humility, not hubris



# The RDoC Framework



# RDoC Matrix: What it really is

## DOMAINS

(Constructs  
Nested  
in Domains)

Negative Valence

Positive Valence

Cognitive Systems

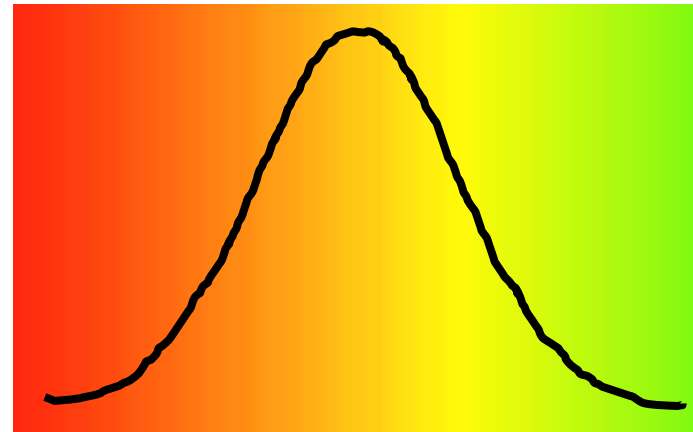
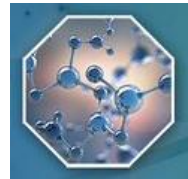
Social Processes

Arousal/Modulatory

Sensorimotor

(Note: Domains &  
Constructs are  
Exemplars)

## Units of Analysis (Exemplars)



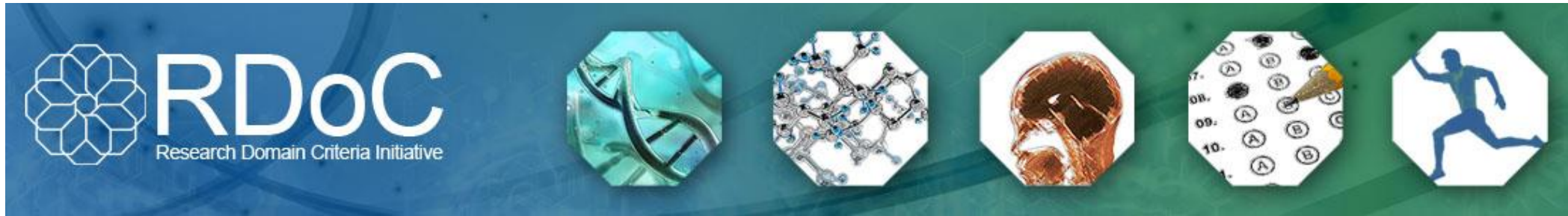
Cognitive Control (e.g.)



# Upcoming Talks

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- Academic and industry researchers
- Examples of clinical trial designs that move beyond diagnoses and symptoms



**Thank you for your time!**

**Questions/Comments?**

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