

The Human Conductome: A New Paradigm for Understanding Human Obesity

Organisers:

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**WORKSHOP "THE HUMAN CONDUCTOME: A NEW PARADIGM FOR UNDERSTANDING OBESITY" 29-30
NOVEMBER 2018, C3-UNAM, MEXICO**

- **What is the meeting for and about?**
- **How will it work?**
- **What do we hope to get from it?**

What is the meeting for?

Because obesity is...

- The most expensive threat humanity faces
- It's a truly global problem
- Its getting worse
- **And we haven't been able to do very much about it...**
- **In spite of huge investment and thousands of the most brilliant minds on the planet trying to solve it**

What is the meeting about?

- We know that human “conduct”, both at the individual and collective level, is largely/wholly responsible for the crisis
- However, we need to better understand why we are failing with respect to the obesity crisis
- We need to take a truly transdisciplinary viewpoint of why, and determine if a better understanding of why can help formulate interventions to reduce its impact
- We need to understand the implications and challenges of a truly multi-factorial, multi-scale analysis
- We need new paradigms...
 - “omic” (genome, proteome, transcriptome, metabolome etc.) technologies have revolutionized biology at the micro level
- In analogy, thanks to the Data Revolution and the presence of multiple new technologies, we may dream of at least beginning to construct a “CONDUCTOME” - the entirety of factors which control human behaviour

How will the meeting work?

11 x 30 min (approx.) talks as discussion detonators followed by 30 min discussion centered on the talk. Discussion will be moderated (strongly). Key points and questions will be noted, e.g., on the electronic blackboard. At the end of each session there will be a Wrap Up that tries to summarize what has been learned and what is missing with an eye on constructing the Conductome. Final session on Friday will try determine if the Conductome is a potentially useful and feasible concept and if so to formulate a plan for constructing it.

Thursday 29th November

9.15am-9.45am Dr. Chris Stephens, C3 and ICN, UNAM
The Conductome: A New Paradigm for Obesity

10.15am-10.45am Dr. Humberto Nicolini, Instituto Nacional de Medicina Genómica
Obesity as a behavioural phenotypic; a Gestaltomics proposal.

11.15am-11.45am Dr. Ruud Buijs, Instituto de Investigaciones Biomédicas, UNAM
Basic neurological mechanisms controlling metabolism

12.15pm-12.45pm Dr. Carolina Escobar, Dep. de Anatomía, Fac. de Medicina, UNAM
Biological Rhythms and Metabolism

1.15pm-2.15pm Wrap up session - everyone

2.15pm-3.45pm Lunch

3.45pm-4.15pm Dr. Sachin Panda, Salk Institute for Biological Studies
Waking up to Chronic Circadian Disruption

4.45pm-5.15pm Dr. Lucia Ledesma, División de Neurociencias, Hospital XX de Noviembre
Neuropsychology of eating behaviour: eating disorders and obesity

5.45pm-6.30pm Wrap up session - everyone

Friday 30th November

8.45am-9.15am Breakfast

9.15am-9.45am Dr. Per Sodersten, Department of Neurobiology, Karolinska Institute
External Control of Body Weight

10.30am-11.00am Dr. Cecilia Bergh, Mandometer Clinic, Karolinska Institute
Eating Behaviour and Satiation

11.30am-12.00pm Dr. Noah Snyder-Mackler, Dept. of Psychology, University of Washington
Social stress, physiology and diet in non-human primates

12.30pm-1.45pm Wrap up session – everyone

1.45pm-3.15pm Lunch

3.15pm-3.45pm Dr. Peter Gollwitzer, Department of Psychology, New York University
Effective Intentional Control of One's Health Behavior

4.15pm-4.45pm Dr. Rolando Díaz-Loving, Facultad de Psicología, UNAM
Why did I get fat? the role of psycho-socio-cultural variables

5.15pm-6.30pm Conclusions and next steps

What do we hope to get from it?

- Formulate a conceptual framework, with associated ontology/taxonomy, for understanding the human “Conductome”
- To identify data gaps and formulate a strategy for obtaining and integrating data with respect to which the Conductome may be better described empirically
 - Proposal for transversal and longitudinal experimental protocols for obtaining and integrating data for the description of the Conductome
- To evaluate and propose innovative quantitative methodologies (machine learning, deep learning etc.) for modelling the Conductome.
- A better understanding of how to do multi-factorial science
 - The challenge of data
 - The challenge of disciplinarity
- Determine the potential for a multi-national, multi-disciplinary collaboration to develop the Conductome project aimed at understanding the origin of the obesity problem using a highly multifactorial, multi-scale Proof of Concept data set (UNAM Project 42 Data).

What do we hope to get from it?

Sachin's difficult question...

What 10 variables would you want to know more about to understand the Conductome?

- Chris's suggestion for ranking candidates (categories versus variables etc.)
 1. Cause versus consequence, e.g. hours sleep
 2. Direct versus indirect (proxy), e.g. educational level versus overconsumption
 3. Modelling weight and statistical significance (signal to noise ratio)
 4. Interpretability
 5. Measurability
 6. Actionability