LUXEMBOURG INSTITUTE OF HEALTH
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UNIVERSITÉ DU LUXEMBOURG

LECTURE SERIES & WORKSHOPS

TRANSLATIONAL BIOINFORMATICS AND SYSTEMS BIOMEDICINE

04
SEPT. 2018
Tuesday

LECTURE
Maison des Sciences Humaines
"Blackbox" room
(11, Porte des Sciences L-4366 Esch-sur-Alzette)
4.00 -5.00 pm

MEET THE SPEAKER*
Light snacks provided
Maison des Sciences Humaines
Room N°0.206
5.00 - 6.30 pm

*Please register by sending a mail to florence.henry@lih.lu

SPEAKER
Prof Joaquin DOPAZO
Clinical Bioinformatics Area, Fundacion Progreso y Salud. CDCA, Hospital Virgen del Rocis, Sevilla, Spain

HOSTS:
LIH / University of Luxembourg

RESPONSIBLE SCIENTISTS:
Francisco Azuaje (francisco.azuaje@lih.lu)
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MECHANISTIC MODELS OF PATHWAYS DETECT NEW THERAPEUTIC TARGETS AND PREDICT THE EFFECT OF INTERVENTIONS

ABSTRACT

In spite of the increasing availability of genomic and transcriptomic data, there is still a gap between the detection of gene mutations or gene expression perturbations and the correct and detailed understanding of their contribution to the molecular mechanisms that ultimately account for the phenotype studied. Alterations in cell signaling and metabolism are behind the initiation and progression of many diseases, including cancer. Signaling and metabolic pathways compile a wealth of knowledge on relevant biological processes in the format of maps that describe the complex network of different interaction types among proteins and molecules. Such maps can be used to derive mechanistic models that link gene expression perturbations and/or mutations to changes in the metabolic and signaling activity that provide relevant clues on molecular mechanisms of disease and drug modes of action (MoA). Moreover, mechanistic models can be used to detect potential therapeutic targets that cause the desired effect on specific outcomes of disease or drug action mechanisms as well as to predict the effect of interventions on specific genes.

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