Dear Excellence Cluster

My name is Guillermo Torres and I write in order to express my deep interest to carry out an academic stay in the Laboratory of Biological Networks from 22 to 31 of August of 2015 in Madrid, essentially for two reasons: First because the possibility to learn new powerful network-based methods to analyze complex biological data, kind of data I use in my cluster PhD project, and second to avail myself the opportunity that they offered me to be trained in network-based approaches.

In the recent years the network-based approaches has emerged as a powerful tools for studying complex systems. These allow us to uncovering systems organization and utilizing it for understanding the emergent demeanor of complex biological systems. Many diseases including the inflammatory and aging processes are caused by combination of genetic perturbations and exogenic factors that means are complex systems. In my current cluster PhD project I investigate the host-microbiome crosstalk regarding FoxO 3A gene activity/variability, inflammation status and age of the study participants making use of 16S and metagenome data of human stool samples. This research involves gene, gene products, associated microorganisms, inflammation status and age interacting each other to form a complex interaction network, which is a clear exemplification of complex biological system. Consequently a perturbation in one factor can be propagated through the interactions, and affect or not other elements in the network. Hence this academic stay at the laboratory of Biological Networks addressed by Dr. Javier Buldú, in the Center for Biomedical Engineering of the Technical University of Madrid would be a great opportunity to learn this new and powerful network-based methods in order to apply them in the developing of my cluster PhD project. Besides, to my knowledge I cannot learn this methods at the centers related to the cluster ergo this trip would be a unique opportunity to engage my knowledge at this field of data analysis.

All and all it is my belief that acquire this cutting-edge data analysis methodology from an excellence group devoted to research on networks and their biological applications is really beneficial for the development of my cluster PhD project.

Yours faithfully,

Guillermo G. Torres

MSc. PhD. student