



ID de Contribution: 36

Type: Non spécifié

The physics of DNA methylation

In higher organisms, all cells share the same genome, but every cell expresses only a limited and specific set of genes that defines the cell type. During cell division, not only the genome, but also the cell type is inherited by the daughter cells. This intriguing phenomenon is achieved by a variety of processes that have been collectively termed epigenetics: the stable and inheritable changes in gene expression patterns. We focus here on the multi-scale *physical* mechanisms that go with DNA methylation. By putting the complex biological literature under this new light, the emerging picture is that a limited set of general physical rules play a key role in initiating, shaping and transmitting the associated “epigenetic landscape”. This new perspective not only allows to rationalize the normal cellular functions, but also helps to understand the emergence of pathological states, most notably cancer, in which the epigenetic landscape becomes dysfunctional.

R. Cortini et al, The physics of Epigenetics, arXiv:1509.04145

Auteur principal: Dr CORTINI, Ruggero (LAAS)

Orateur: Dr CORTINI, Ruggero (LAAS)