

Conférences Ecole Doctorale Environnement Santé le 15 Avril 2014

Amphi. Mariotte - UFR SVTE - Gabriel

10h00 Prof. Claus Jacob : c.jacob@mx.uni-saarland.de

Titre : « Ageing, stress and redox control: A new paradigm with old suspects »

Bioorganic Chemistry, School of Pharmacy, Saarland State University, Germany

Abstract:

The rapidly accelerating demographic changes seen in most developed Societies have shifted the focus of many disciplines of Science to ageing, and to issues related to how to cope with an ever increasing number of elderly people. Unlike diseases, but like a good French camembert, ageing is a natural and beneficial ripening process of the organism. It is driven primarily by various (epi-)genetic factors and 'wear and tear', which also includes aspects of cellular and oxidative stress. Not surprisingly, antioxidants have therefore witnessed a certain renaissance in research and Society, as potential chemopreventive agents affecting the elderly, but also as epigenetic modulators able to affect and possibly also to slow down the natural process of ageing.

This seminar will consider various genetic and biochemical aspects relevant to the ageing process. It will briefly consider oxidative stress and then take a closer look at the role antioxidants may play as an important nutritional, supplementary or even therapeutic entity in a future, aged society.

11h00 Dr. Michael Schnekenburger : michael.schnekenburger@lbmcc.lu

Titre : « Epigenetic alterations in leukemia as biomarkers and targets for chromatin remodeling agents »

Laboratoire de Biologie Moléculaire et Cellulaire du Cancer (LBMCC), Hôpital Kirchberg, L-2540 Luxembourg, Luxembourg

Abstract:

Over the past years, there is increasing evidence demonstrating that epigenetic alterations including DNA methylation, histone modifications and miRNA play important roles in the onset and progression of hematological malignancies. The potential reversibility of epigenetic abnormalities encouraged the development of pharmacological interventions with chromatin modifying agents (CMAs), also called epigenetic drugs such as DNA methyltransferase (DNMT) and histone deacetylase (HDAC) inhibitors. Although CMAs have a relevant therapeutic potential, only few molecules has been approved for cancer treatments in a limited number of diseases (1-6). Therefore, for a better management of these diseases, there is a need in one hand to improve our comprehension of epigenetic mechanisms and their implication in carcinogenesis and in another hand to better characterize the currently used epigenetic drugs as well as to identify and develop new CMAs for improved anti-cancer therapies.

1) Florean, C., M. Schnekenburger, C. Grandjette, M. Dicato and M. Diederich (2011). Epigenomics of leukemia: from mechanisms to therapeutic applications. *Epigenomics* 3(5): 581-609.

2) Schnekenburger, M. and M. Diederich (2012). Epigenetics Offer New Horizons for Colorectal Cancer Prevention. *Curr Colorectal Cancer Rep* 8(1): 66-81.

3) Karius, T., M. Schnekenburger, M. Dicato and M. Diederich (2012). MicroRNAs in cancer management and their modulation by dietary agents. *Biochem Pharmacol* 83(12): 1591-1601.

4) Seidel, C., C. Florean, M. Schnekenburger, M. Dicato and M. Diederich (2012). Chromatin-modifying agents in anti-cancer therapy. *Biochimie* 94(11): 2264-2279.

5) Folmer, F., B. Orlikova, M. Schnekenburger, M. Dicato and M. Diederich (2010). Naturally occurring regulators of histone acetylation/deacetylation. *Current Nutrition & Food Science* 6: 78-99.

6) Seidel, C., M. Schnekenburger, M. Dicato and M. Diederich (2012). Histone deacetylase modulators provided by Mother Nature. *Genes Nutr* 7(3): 357-367.