

## **[COST] Action CA15129\_ DiMoPEX\_WG.5**

### **Abstract**

### **DNA methylation as a potential epigenetic tool for diagnosis and monitoring of exposures related diseases**

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Accumulating evidence suggests that environmental factors induce epigenetic alterations which can contribute to the onset of NCDs of which cancer is one of the most prevalent.

Recently, three human carcinogens (aflatoxins, benzene and benzo[a]pyrene) classified as Group 1 by the International Agency for the Research on Cancer and related to environmental and occupational hazards, were evaluated from literature data for their epigenetic effect, particularly on DNA methylation. For many other agents the epigenetic evidences were preliminary and further research is needed to better identify carcinogenesis-associated epigenetic perturbations.

In this respect the methodological approach (qualitative or quantitative as well as the source of the biological samples analyzed) is crucial to correctly interpret the role of hyper- or hypo- DNA methylation, a major type of epigenetic alterations, exploiting the possibility and in prospective to validate the use of DNA methylation markers for the diagnosis and for monitoring individuals to exposure-related diseases.