Institute of Molecular Biology

Ad Hoc Seminar

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DNA in extracellular vesicles (exosome): functional potential in cell-to-cell communication in cancer and metastasis

Wednesday 20th February, 14:00 (*s.t.*)

Venue: 2nd Floor Seminar Room

Institute of Molecular Biology (IMB)

Johannes Gutenberg University Campus

All are welcome to attend.

Host: Prof. Dr. Christoph Cremer

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Abstract

Extracellular vesicles (EVs) are a heterogeneous population of membrane-bound vesicles that are secreted by almost all cell types, both healthy and diseased. They have been found to contain several biological molecules including various RNAs, proteins, lipids, single-stranded DNA and double-stranded DNA (dsDNA). Moreover, it has been shown that the dsDNA found within EVs can potentially reflect the entire genome of the parental cell from which the EVs were released, including the mutational status. This finding, as well as their easy accessibility and isolation through liquid biopsies, makes EVs potential candidates for utilisation as biomarkers for several cancers and diseases. Furthermore, it is well established that EVs have an important role in cell-to-cell communication, and have even been shown to play a part in promotion of metastasis and tumour progression through interaction with cells of the pre-metastatic niche. Although it is already known that EV-DNA is transferred between cells, a lot is still unknown about the uptake, transport and localisation of the EV-DNA in recipient cells, and whether this DNA has an active functional role in tumour promotion and metastasis. Therefore, in our lab we aim to investigate the mechanism of EV-DNA uptake and their functional potential to promote cancer spread.