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Christoph Metzner and Marianne Zaruba

On the Interplay of Extracellular Vesicles and Viral Infections

A broad definition of extracellular vesicles – lipid membrane enclosed vesicles of a given size range, produced by cells into the surrounding media and unable to replicate independently – does not only apply to exosomes or microvesicles produced by eukaryotic cells, outer membrane or outer-inner membrane vesicles produced by gram-negative bacteria and membrane vesicles produced by gram-positive bacteria (and archaea), but also extends to enveloped virus particles. They share biophysical and biochemical characteristics as well as functional properties, making it a challenge to distinguish between types of vesicles.

EVs in fungal plant infections

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Timo Schlemmer, Richard Lischka and Aline Koch

Elucidating the role of extracellular vesicles in the Barley-Fusarium interaction

Fusarium graminearum (Fg) is a necrotrophic fungal pathogen that causes devastating diseases on its crop hosts barley and wheat. Recently, small RNAs (sRNAs) were identified as mobile communication signals between eukaryotes and their pathogens, symbionts or parasites. It has been shown that pathogens secrete sRNAs as effectors to suppress plant immunity and plants use endogenous sRNAs to resist infection, a phenomenon termed cross-kingdom RNAi; ckRNAi. However, little is known about the transport of fungus- or plant produced sRNAs to silence genes that contribute to immunity.

Liquid biopsies in cardiovascular diseases

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Christoph Lipps

Extracellular vesicles as biomarkers for diagnostic and prognostic application in cardiovascular disease

Cardiovascular disease (CVD) remains the leading cause of morbidity and mortality worldwide. Early diagnosis and the development of a prognosis is important for management or secondary prevention of the disease. In the past few decades, various biomarkers have been identified for improved risk assessment, more accurate diagnosis and prognosis, and a better understanding of the underlying pathophysiology in CVD. Extracellular vesicles (EVs) are thought to be important to cell-to-cell communication in the heart, and EV counts, cellular origin, and EV content have been related to CVD. This review examines current evidence for the potential application of EVs as a new class of biomarkers in CVD.