Technology Offer

Multi-well Exosome Libraries for High-throughput *In Vitro* Cell Activity Assays

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Extracellular vesicles (EVs) such as exosomes and microvesicles participate in the intercellular communication by transferring bioactive molecules between various cells and tissues. Such EVs cross-talk was shown to play important roles in cell–cell communication, cell maintenance, disease progression and therapy. By containing disease specific markers, EVs can also act as diagnostic biomarkers. In addition, synthetic EVs are used as carriers to deliver drugs or mRNA-based vaccines to specific targets. Although there is high demand for *in vitro* assays to study the function, content and (patho-)physiological effects of EVs, preparation of high quality EVs is costly and requires tedious purification processes involving e.g. ultracentrifugation and immune purification.

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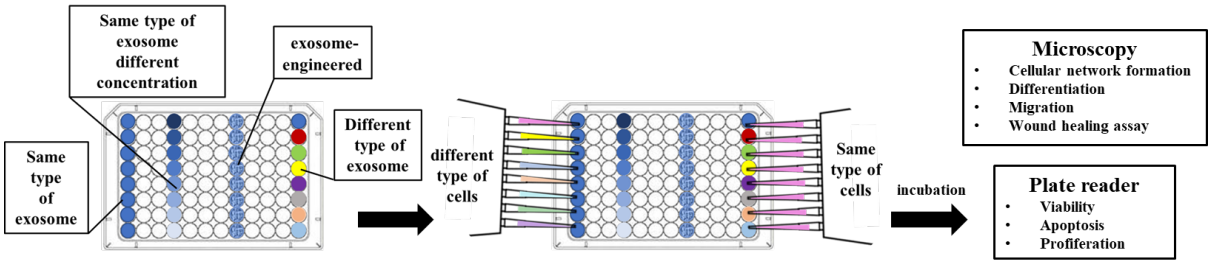
Scientists from the Max-Planck-Institute for Multidisciplinary Sciences in Göttingen have developed a method to construct stable EV libraries in standard microtiter plates. These libraries are suitable for high-throughput cell activity assays. By a dry-drop approach purified EVS are immobilized on sterile surfaces while maintaining their full activity. Advantageously, the immobilized EVs can then be frozen and kept at -20 or -80 °C, shipped and thawed again. Since the coated EVS are free of a buffer solution, any kind of cell-based *in vitro* assay can be performed using the EV library (see figure). The assay is scaled down in volume and requires only limited amounts of testing material. The multi-well format makes it possible to analyze various cellular responses like proliferation, cell viability, differentiation, migration and apoptosis by microscopy or by automated high-throughput assays with multimode plate reader. Preparation of custom-made EV libraries enables scientists to study EV signaling in a parallel, highly reproducible and quantifiable manner.



Publication

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Patent Information

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