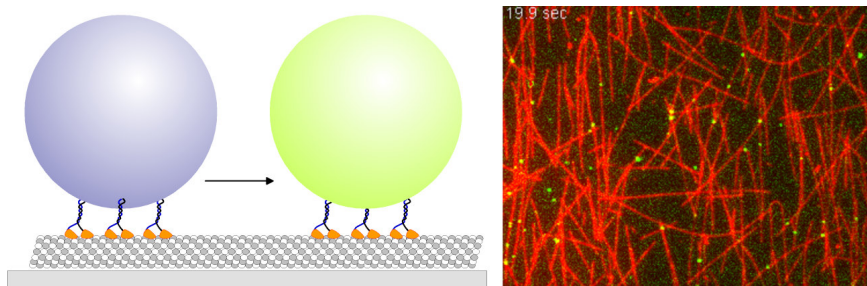




Directed transport of nanoscopic cargos by molecular assembly lines

Manipulation, organization and analysis of biological materials in nanoscopic dimensions will play a key role for developing advanced diagnostic tools on the level of individual cells. The aim of this project is to generate molecular assembly lines by spatio-temporal controlled protein immobilization. For this purpose, methodologies will be established for controlled and directed polymerization of microtubules on surfaces into predefined structures using anti-tubulin antibodies. Within a 2-year feasibility study, several optical and AFM-based techniques will be explored for their potential for lateral control of microtubule polymerization. Processive molecular motors attached to nanoscopic cargos will be used for directional transport on these tracks. In a follow-up 3-year project, this technology shall be developed towards a commercial product for applications such as single cell analytics and diagnostics.



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