

## Chemical Nanomachines as active drug nanovehicles

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### Abstract:

Engineering tiny machines that convert chemistry into motion is of huge impact in multidisciplinary chemistry as indicated by the current Nobel Prize in Chemistry to “Nanomachines”. Self-propelled nanomachines are opening many avenues in fields such as robotics, biosensing, nanomedicine, microfluidics, and environmental field [1, 2]. One example could be in nanomedicine, where the active and direct transport of drugs to specific locations enabled by hybrid micro-nano-bots, which are powered either by enzymatic catalytic reactions [3-5], by motile cells such as sperms or bacteria or by multiple 3D bioprinted cells. [6]

Here, I will present our recent developments in the field of bio- and nano-engineering systems that can be autonomously activated and perform complex tasks. We fabricate nano-bots from mesoporous silica nanoparticles, microcapsules, microtubes up to 3D Bioprinted structures. Our types of hybrid Micro-bio-bots combine the best from the two worlds, biology and (nano)materials providing remote control with biocompatible fuels with the hope to make them suitable for bio-related applications in the near future.

### References

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