INTRO TO INNOVATION FROM NANO: ANTIVIRAL AGENT FROM II-VI SEMICONDUCTOR

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The talk will share experiences from the perspective of a nanomaterials researcher in academia on how to take ideas from basic research to the market. It will report on how the interaction with a start-up company developed into a scale-up medical company. Currently, it produces a microscale single crystalline an II-VI semiconductor, which was researched in the functional nanomaterials group at Kiel University [1] in interaction with several medical groups in Kiel and worldwide, see e.g. [2-5], and which acts as an antiviral pharmaceutical ingredient by using oxygen vacancies on its surface to immobilize viruses and alert the immune system (see fig. 1). As well as exploring new applications in the antibacterial field [4,5], the talk will also present production methods for the material under GMP.

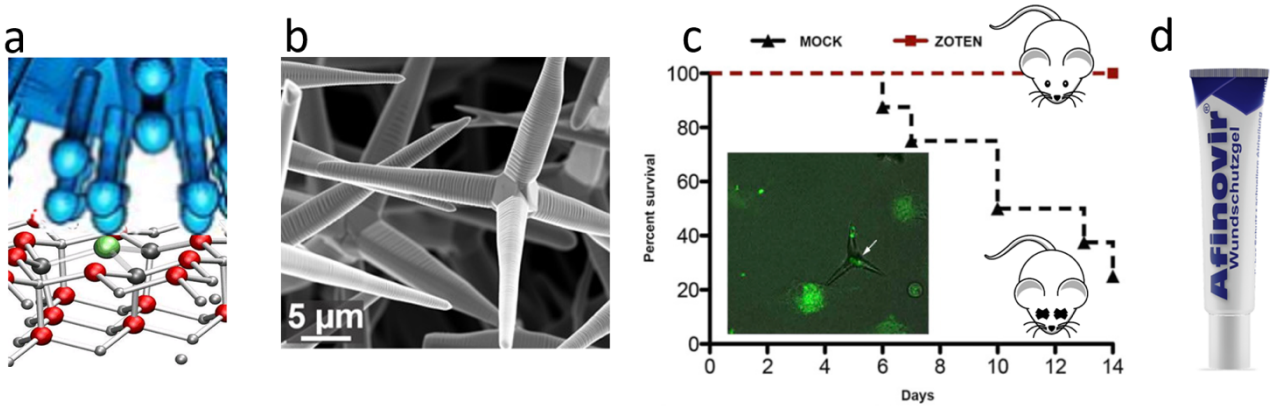

Fig.1: Visualization of the application of a II-VI semiconductor in a medical product. a) Illustraion of the binding of a viral spike at an oxigen vacancy b) SEM image of the tetraopodal microcrystaline structure of the II-VI semiconductor ZnO c) Effect of the tetrapods on the survival rate of herpes virus infected mice (HSV), inset: flurescence marked viruses are picked up by antigen presenting cells d) medical product containing the T-ZnO.

[1] Materials Today 2018 https://doi.org/10.1016/j.mattod.2017.11.003
[2] AntiviralRresearch 2011 https://doi.org/10.1016/j.antiviral.2011.08.017
[3] The journal of Imunology https://doi.org/10.4049/jimmunol.1502373
[4] Advanced Functional Materials 2021 https://doi.org/10.1002/adfm.202007555m
[5] Nano Conversion 2023 https://doi.org/10.1186/s40580-023-00401-6