**TEEP Online internship**

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| Grade requirements | Master or Doctoral Student | Professional subjects requirements | Physical or biological chemistry major |
| Research theme I | Recent advances in the development of optical sensors for membrane fusion monitoring | | |
| Extracellular vesicle (EV) is a biogenetic nanoparticle produced from animal cells and bacteria, called exosomes and outer membrane vesicles (OMVs), respectively. Lipid bilayer's structured EVs with natural bio components such as genes and active membrane proteins have been demonstrated, showing the immense potential as a promising vesicular material. Through particular membrane fusion processes between EVs and host cells, EVs show great potential in various applications. We want to write a mini-review regarding the topic of optical sensors used for membrane fusion monitoring. We are looking for a suitable person to conduct some works like paper search, information organization, and draft writing. | | | |
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| Research theme II | Understanding the fusion mechanism between extracellular vesicle and Gram-positive bacteria | | |
| Many research reports have indicated that extracellular vesicle (EV) plays a pivotal role in critical biological reactions or actions, such as cancer metastasis, membrane fusion process, intercellular communication, quorum sensing, extracellular electron transport, drug-resistant, and defending phage. However, the mechanism of the membrane fusion process on Gram-positive bacteria still is unknown. Therefore, we would like to design a feasible method to analyze the fusion process on Gram-positive bacteria. We are looking for a suitable person to assist us in achieving this aim. | | | |