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Imaging cells in live animal – a discovery learning in biomedical imaging

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Abstract:

Discovery learning is an effective mean to optimize students' achievements. To enhance the teaching in medical biotechnology and gateway courses that related to healthcare technology. I propose a two-level laboratory module. The first level is to provide student with opportunities to handle cells and image cells both under the microscope and using magnetic resonance imaging (MRI). The second level is a project-based discovery learning. Students who demonstrate interests are encouraged to work in groups to design projects to address clinical needs using their skills acquired in the laboratory module. Cell is the most essential basic unit of human body, and many disorders and diseases are related to the improper function of cells. To show students that MRI can image labeled cells in small animals, which can arise their curiosity towards the physiological or pathological processes. Moreover, MRI is an important imaging modality in medicine for diagnosis and biomedical engineering, the hands-on experiences can instill a passion for knowledge in students. This laboratory experience will help students to acquire basic biomedical research skills, develop critical thinking and integrate the skills in applications relevant to clinical settings.