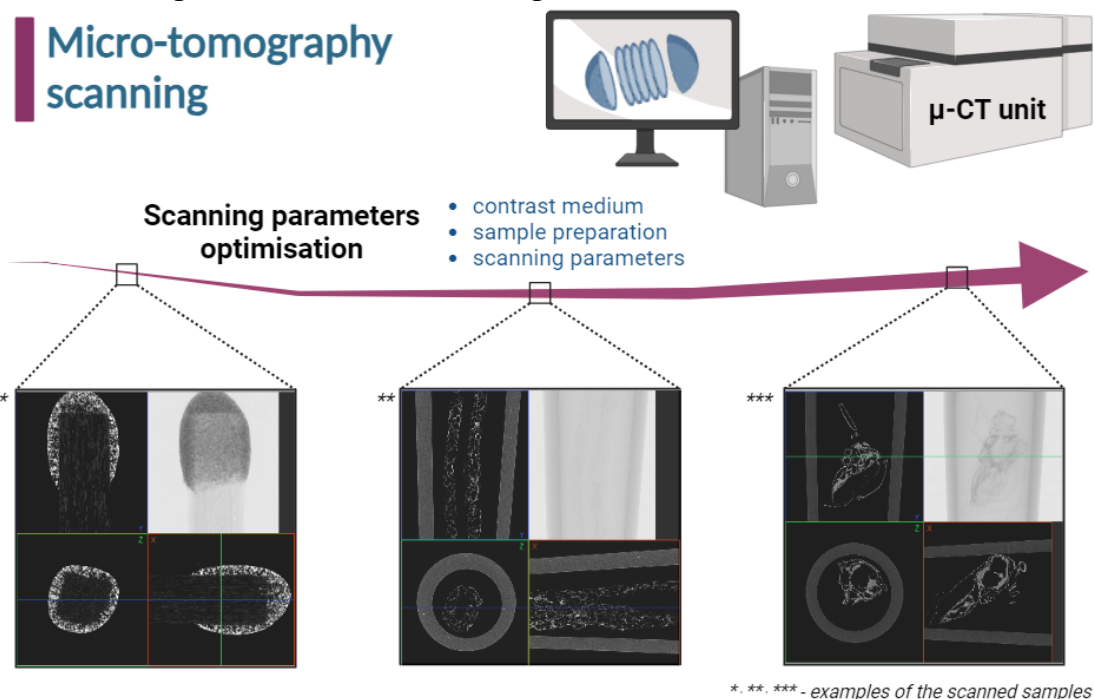


Discovering the inside – optimization of the scanning conditions to precisely explore the interior of 3D structures

Micro-computed tomography (μ CT) is widely used for the study of mineralized tissues, but a similar use for soft tissues is hindered by their low X-ray attenuation. This limitation can be overcome by the recent development of different staining techniques. Staining with Lugol's solution stands out among these techniques for its low complexity and cost. During this project, the aim is to optimize the quality and reproducibility of the staining to increase the resolution of soft-matter visualization in the context of hydrogels for tissue regeneration. **The project include optimizing the Lugol staining process for hydrogel materials by evaluating the effect of different concentrations and a variation in sample storage times before/after staining.** Finally, the potential of staining techniques to evaluate interior porosity of soft hydrogel material will be demonstrated. This information is foreseen to help improve the understanding of the regenerative process involving soft tissues and hydrogels providing a 3D context to histological and SEM-based findings.



Abstract of the Master thesis project' created in Biorender.com

Related literature:

- <https://doi.org/10.1155%2F2019%2F7483745>
- <https://doi.org/10.1002/adma.202309026>
- <https://doi.org/10.1007/s10856-017-6024-2>
- <https://doi.org/10.1016/j.matdes.2020.109312>

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