

**n-TRACK**

**Multimodal nanoparticles for structural and functional tracking of stem cell therapy on muscle regeneration**



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# > Real-time tracking of cell-based treatments

**nTRACK** develops a safe, scalable and highly sensitive multimodal cell nano-imaging agent ready for testing in humans. The nTRACK approach enables a non-invasive monitoring of the entire body, longitudinal and quantitative discrimination of living stem cells in humans using CT, MRI and PET, simultaneously.



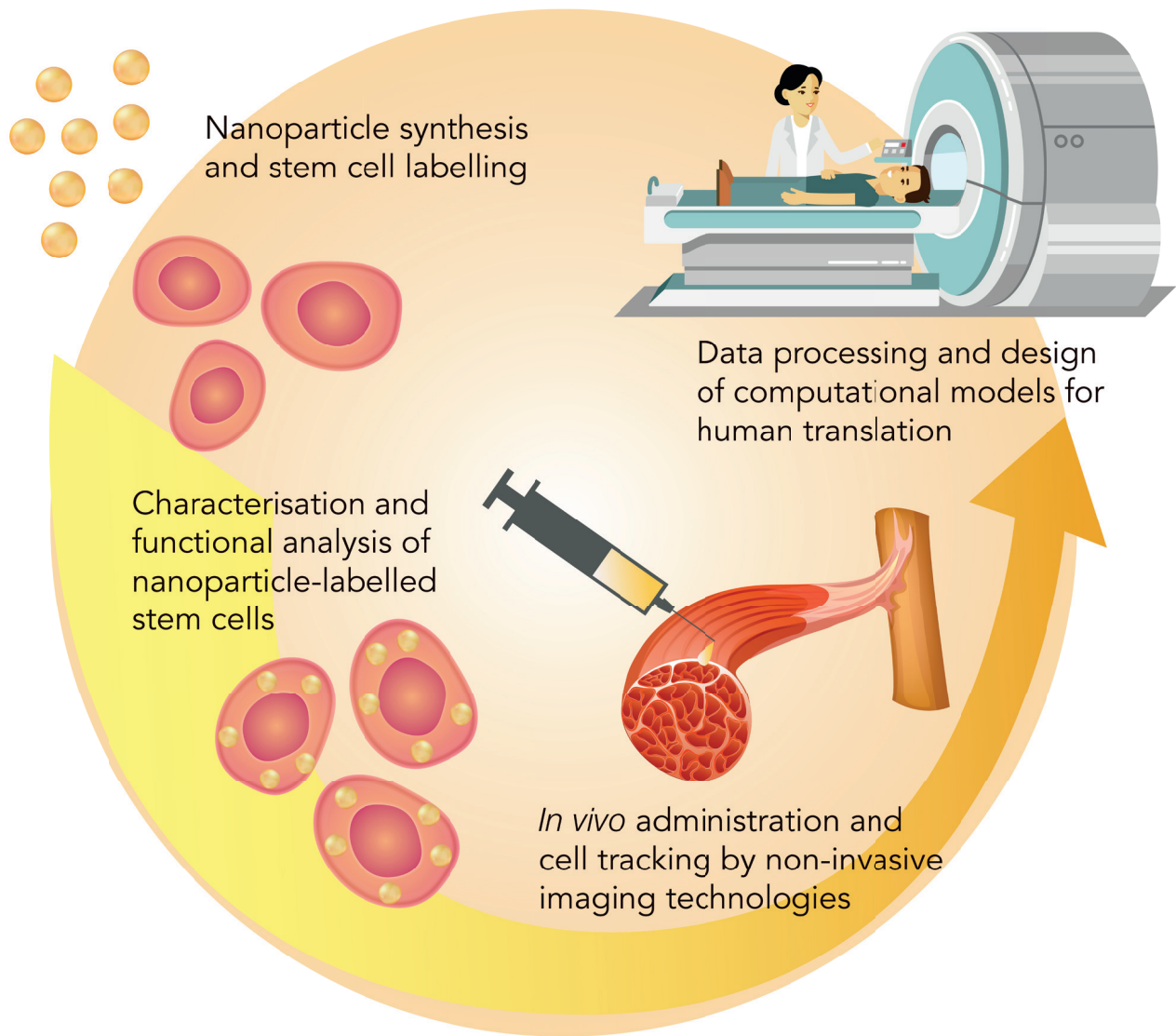
# > Objectives

- 1 Facilitate stem cell labelling by delivering a standard operating procedure to be transferred to third parties.
- 2 Enable non-invasive whole body and long-term cell monitoring with clinical applicable imaging.
- 3 Increase the sensitivity of the imaging methods up to a single cell detection level.
- 4 Provide vital functional information on the therapeutic stem cells by machine learning algorithms.
- 5 Design protocols for human translation that can recommend optimal imaging conditions.
- 6 Provide early assessment of cell therapy effectiveness based on prompt evaluation of the migration and biodistribution patterns.



Stem cells will be labelled with nTRACK **magnetic core** gold shell nanoparticles and fully functional and safety characterised to be ready for clinical stage. The labelled stem cells will be injected into an injured muscle and tracked, including **cell functionality and long-term viability, using structural and functional imaging modalities that are clinically available**. Functionality, activity and nonclinical safety will be evaluated. Regulatory and commercialization aspects will be addressed to foster a prompt clinical translation and exploitation.







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 @nTRACK\_H2020

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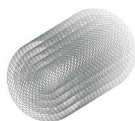
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