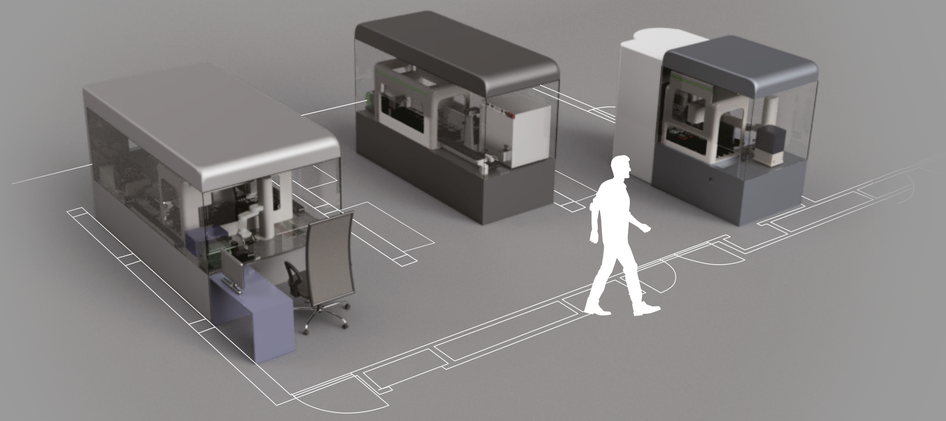
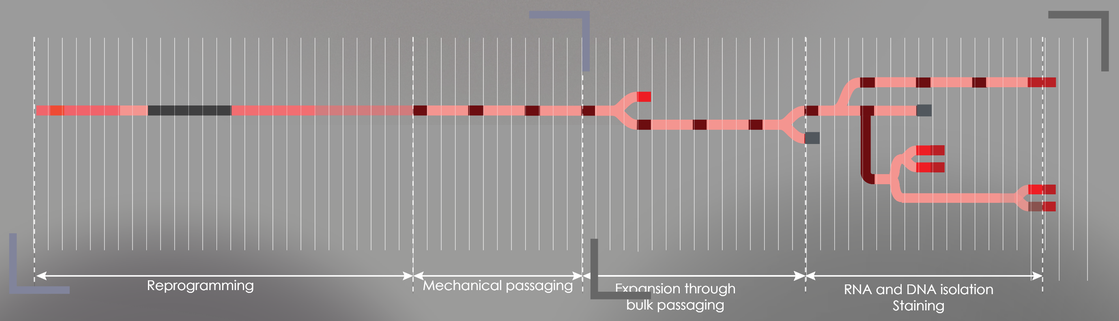




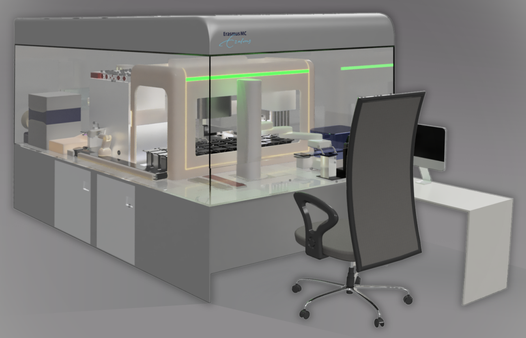
The RXF

A modular automated system for the changing needs of Induced Pluripotent Stem Cells production

Human induced Pluripotent Stem Cells (IPSCs) offer the possibility to model human disease and study their behavior in a dish and helping scientists discover early disease-causing events in cells. They are a fundamental promise for discoveries in congenital diseases.

At present, the generation of iPSCs is very labor-intensive requiring daily monitoring and handling of iPSCs. Researches have to be trained in every detail of the process, constantly monitor and bring further the development of the cells. This is a limiting factor for the generation of a high number of iPSC lines. Human handling can also include variables of imprecision, which can make the process last longer.
Automation is the solution adopted to overcome these struggles and increase production throughput. Existing automated models, however, are extremely expensive and rigid systems that require even additional costs in order to satisfy the change of needs of an IPSC producing Facility.

In order to satisfy this need, starting from the analysis of the processes used at the IPS Core Facility at Erasmus MC, the RXF system was developed. It consists of three separate modules, each independent from each other and controlled by common control software. Each module is used during one section of the overall IPSC production process, giving possibilities of repurposing the remaining modules for other needs.
Merging flexibility, control and high throughput the RXF is the optimal ally for biological research.

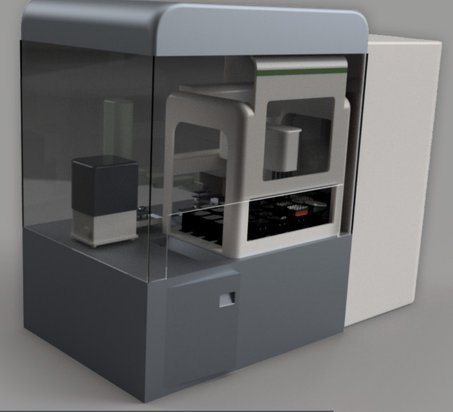


R - the reprogramming unit

Module used in the first half of the process it is where IPS colonies are derived and grow, Distributed around high edge imaging devices this module gives the highest attention to control.

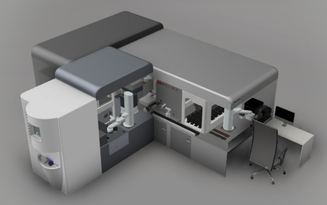
X - Expansion unit

Module used for the shorter hald of the process and enduring the highest intensities of production. It is suitable for further expansions, usage for other processes and designed for efficiency of internal flow.



F -Freezing unit

Module of the lowest economical impact used at two times of the process, integrating the best technology for sample tracking it can be trusted on avoiding confusion through samples.



Modules can be operated separately as well as combined between each other for possibility of sharing imaging devices and saving on the highest costs.

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Design for an automated system for research on genetic diseases
24th August 2020
Integrated Product Design

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