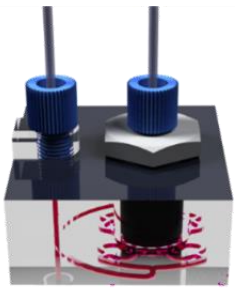
STREAM

System for bone tissue relevant environment and monitoring

TECHNOLOGIC SUMMARY

A bioreactor aimed to develop standardized bone tissue models, with applications ranging from basic research to drug discovery.



REFERENCE	STREAM [D02181]
KEYWORDS	BONE, TISSUE MODEL, CELL CULTURE, BIOREACTOR, SCREENING, RESEARCH.

APPLICATIONS

- Fundamental research
- In depth understanding of bone pathologies (e.g., osteoporosis)
- Drug screening
- Validation of medical devices

TARGET MARKETS

- Lab hardware
- Cell culture
- Organs-on-chip

Technology Readiness Level
TRL 4 « *Technology validated in Lab environment* »

INTELLECTUAL PROPERTY

Patent FR N°18 6040,
extension Europe & USA

RESEARCH LABORATORY

SAINBIOSE UMR 1059
Santé Ingénierie Biologie St-Étienne

Mines Saint-Etienne, Univ Lyon, Univ Jean Monnet, INSERM U 1059

DESCRIPTION

STREAM is an innovating system aiming to **control, standardize and simplify the culture of bone tissue models** cultivated *in vitro* on perfused 3D scaffolds.

The system is composed of culture chambers embedded in an automated fluidic circuit. Additionnaly to the possibility to adjust and control in real-time cell culture conditions (e.g., hydrodynamic and chemical environments), the device allows for advanced live cell monitoring through culture medium composition analysis and fluorescence microscopy (cf. picture below).

Potential applications for this tool range from fundamental bone physiology research to drug and biomaterials screening and assessment (e.g., toxicology, pharmacokinetics, scaffolds and implants biocompatibility/bioactivity).

COMPETITIVE ADVANTAGES

- Custom designed culture scaffolds
- Tight control over the culture environment
- Fully automated culture protocols
- Continuous and real-time cell monitoring

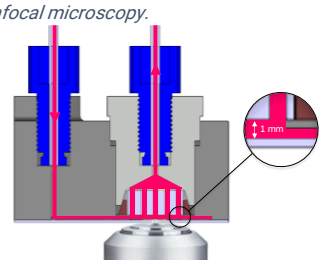
DEVELOPMENT STAGE

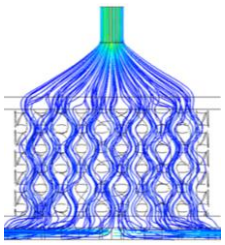
- *In silico* validation of the hydrodynamic environment
- Prototypes available
- On-going : Development of automated cell-seeding procedures

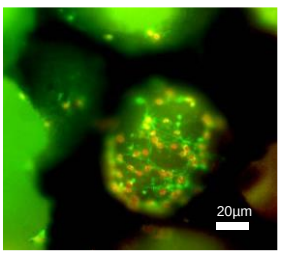
PARTNERSHIP OPPORTUNITIES

PULSALYS is looking for (i) academic or industrial research facilities interested in testing/using the system (ii) industrial partners interested in bringing this product to the market.

Illustrations : culture chamber, simulated flow through a custom-made scaffold, bone cells seen through confocal microscopy.







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FIND MORE OPPORTUNITIES
https://www.pulsalys.fr/

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