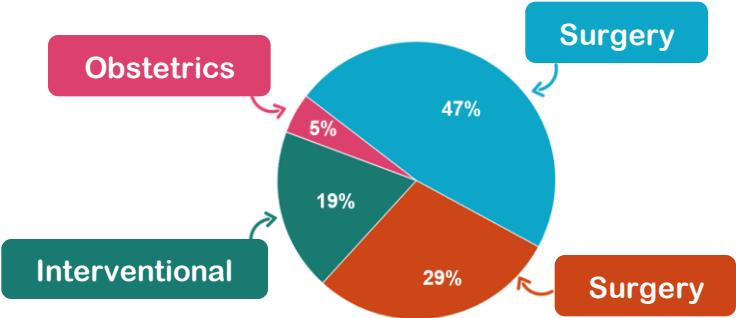
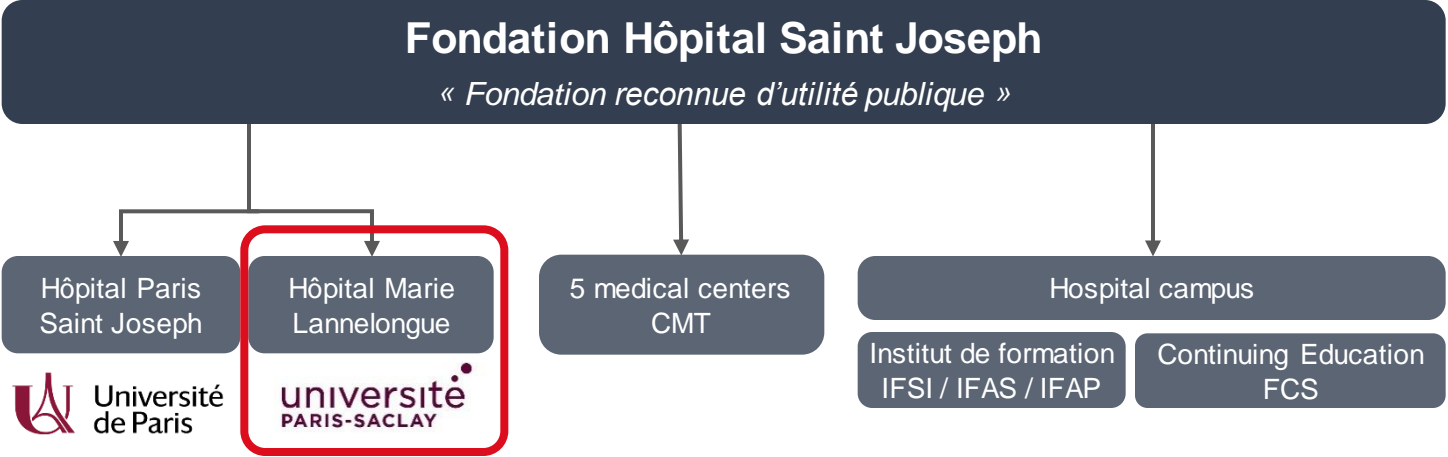


# Marie-Lannelongue Innovation Center

*Surgical innovation to improve patient-care  
in vascular and cardio-thoracic diseases*

# Fondation Hôpital Saint-Joseph



<b>Healthcare</b>	900 beds 4 000 FTE 95 000 stays / year 3 500 births
<b>Research</b>	12 University professors 2 300 publications - 5 last years 300 clinical trials 15 patents
<b>Education</b>	150 medical students / 250 residents 500 paramedic students 2 000 trainees – continuing education 6 University Diplomas

# Marie-Lannelongue Hospital



université  
PARIS-SACLAY

- **Referral center** « Heart – Lungs – Vessels, from birth to childhood »

- ➔ Pulmonary Arterial Hypertension (300p/y)



- ➔ Thoracic Surgery (1000p/y)

- ➔ Complex Congenital Heart Diseases (1700p/y)



- ➔ Vascular Surgery (3000p/y)

- ➔ Cardiac Surgery and Interventional Cardiology (3000p/y)



- **Faculty**



Prof Elie FADEL  
Chirurgie thoracique



Prof Olaf MERCIER  
Chirurgie thoracique



Dr Philippe BRENOT  
Cardiologie interventionnelle



Prof Jérôme LE PAVEC  
Pneumologie et greffe



Dr Amir HANNA  
Pneumologie diagnostique et  
interventionnelle



Dr Pauline PRADERE  
Pneumologie – onco  
Bilan HDJ



Prof Stephan HAULON  
Chirurgie vasculaire aortique



Prof Dominique FABRE  
Chirurgie thoracique et vasculaire



Prof Yann GOUÉFFIC  
Chirurgie vasculaire périphérique



Prof Julien GUIHAIRE  
Chirurgie cardiaque



Dr Saïd GHOSTINE  
Cardiologie interventionnelle



Prof François STEPHAN  
Réanimation chirurgicale



Dr Emre BELLİ  
Chirurgie cardiaque pédiatrique



Dr Sébastien HASCOËT  
Cardiopédiatrie interventionnelle



Dr Marc Zins  
Imagerie médicale



Dr Arshid AZARINE  
Imagerie cardiaque



Dr Caroline CAMELLA  
Imagerie thoracique

# cardiothoracic and vascular surgery, open / endovascular surgery

# interventional cardiology, cardiac valves, cardiac assistance

# newborn, adults, rare diseases

# heart, lung, heart&Lung transplantation, ex vivo perfusion

# aortic aneurisms, arterial pathology

# lung and thoracic cancer, pulmonary hypertension

# cardiothoracic medical imaging

# ECMO, CEC, intensive care

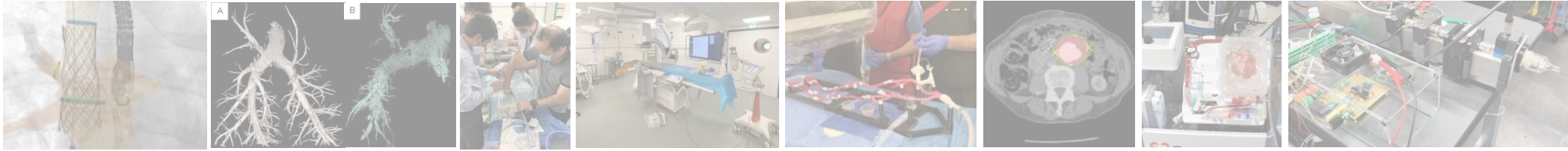
# diagnostic and interventional endoscopy

380 publications sur les 3 dernières années  
5 top 10 – classement du Point

# Medical firsts @Marie Lannelongue Hospital

- 1955** : 1<sup>st</sup> open-heart pediatric surgery in Europe
- 1963** : 1<sup>st</sup> mechanical heart valve in Europe
- 1965** : 1<sup>st</sup> biological heart valve in Europe
- 1986** : 1<sup>st</sup> heart-lung transplantation in France
- 1988** : 1<sup>st</sup> double-lung transplantation in France  
1<sup>st</sup> heart transplantation on a 6-days old baby
- 2004** : 1<sup>st</sup> autologous tracheal transplantation in the world
- 2009** : 1<sup>st</sup> percutaneous pulmonary valve in France
- 2016** : 1<sup>st</sup> double-lung transplantation from a M3 donor
- 2019** : 1<sup>st</sup> Maastricht-3 heart transplantation with *ex vivo* perfusion system in France
- 2020** : 1<sup>st</sup> endovascular treatment of *sinus venosus* congenital heart malformation in France
- 2021** : 1<sup>st</sup> endovascular management of an aortic arch aneurysm in Europe  
1<sup>st</sup> *ex vivo* perfusion of a explanted heart from a M3 patient in France
- 2023** : 1<sup>st</sup> heart transplantation with CARMAT device for cardiac tumor indication in the world



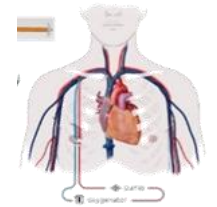


# Academic activities

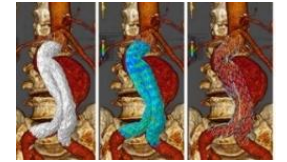
# Innovation programs in 2023



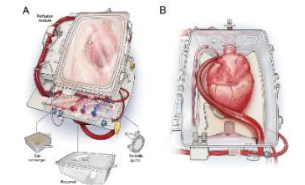
Development of a miniaturized **ECMO** – « BioArtificial Lung »  
Prof Olaf Mercier



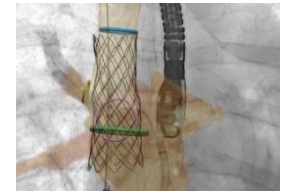
New technologies for a fast and personalized treatment of **aortic lesions**  
Prof Stephan Haulon, Prof Dominique Fabre



Improve **cardiac transplantation** with *ex-vivo* preservation techniques  
Prof Julien Guihaire



Endovascular management of complexe **congenital cardiopathy**  
Dr Sébastien Hascoët

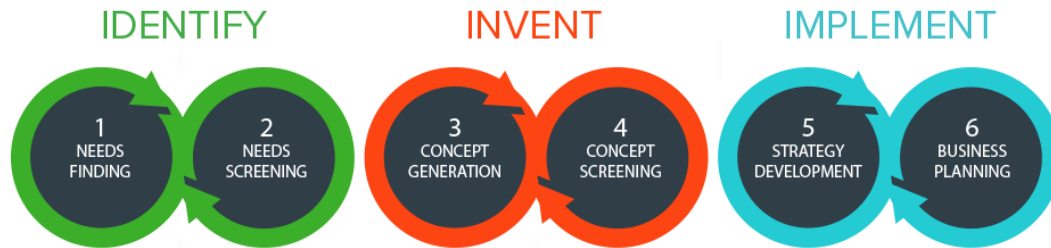


New diagnostic and therapeutic approaches for **pulmonary arterial hypertension**  
Prof Marc Humbert / Prof Elie Fadel



# Biomedical Engineering lab

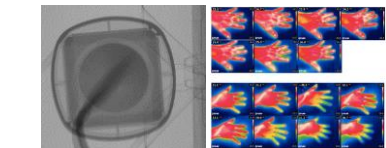
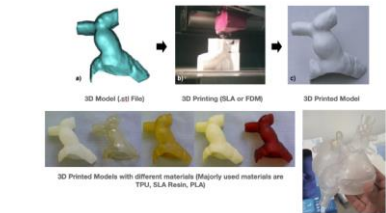
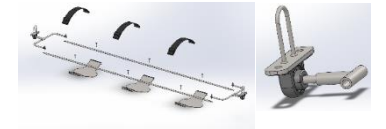
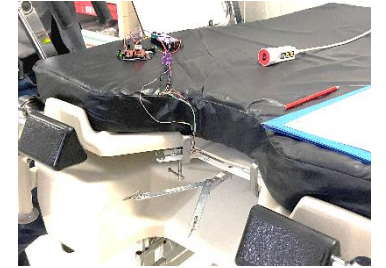
Innovation curriculum based on clinical immersion of engineers



- ✓ Need
- ✓ IP
- ✓ Competition
- ✓ Technical
- ✓ Acceptance

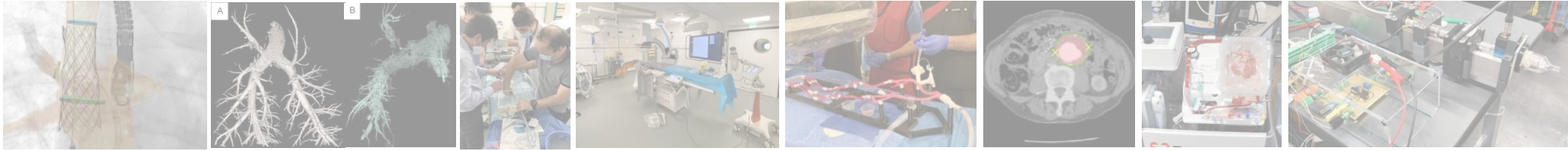


Since 2020 :  
Students → 30 relevant ideas (15 medical specialties)  
Interns → 5 running projects  
MALIC → 2 start-ups



Inspired from Biodesign© Program (Stanford University)

Confidentiel



# Service activities

Confidentiel



# Overview of services

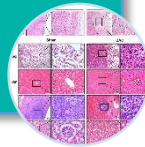
- Ideation, need validation
- Prototyping
- Product development plan
- Risk analysis

## Design & development



- Poc study in swine model
- 3D-print models
- Regulatory study

## Preclinical evaluation



- First in man
- National mono/multicentric study
- Data-sets
- International multicentric study

## Clinical evaluation



- Toxicity
- Biocompatibility
- Microbiology
- Stability ICH
- Material

## In vitro tests



- Education
- Workshop (live, hands-on)
- Seminar
- Board
- Advice

## Medical expertise



- Project management
- Regulatory
- Business strategy
- Market access

## Consulting



Blue : services provided by MALIC  
Black : service provided by our trusted partner NASMA



[drif@ghpsj.fr](mailto:drif@ghpsj.fr)

Confidentiel

NAMSA®

**MALIC**  
MARIE LANNELONGUE INNOVATION CENTER

# Infrastructures et equipment

- **Experimental lab**

- 3 operating rooms (including one cone-beam CT – GEHC)
- 3 animal model (swine, rabbit, rodents) – acute & chronic

- **Lab space**: biology sampling, storage, bench-test

- **ISO 9001 certification**

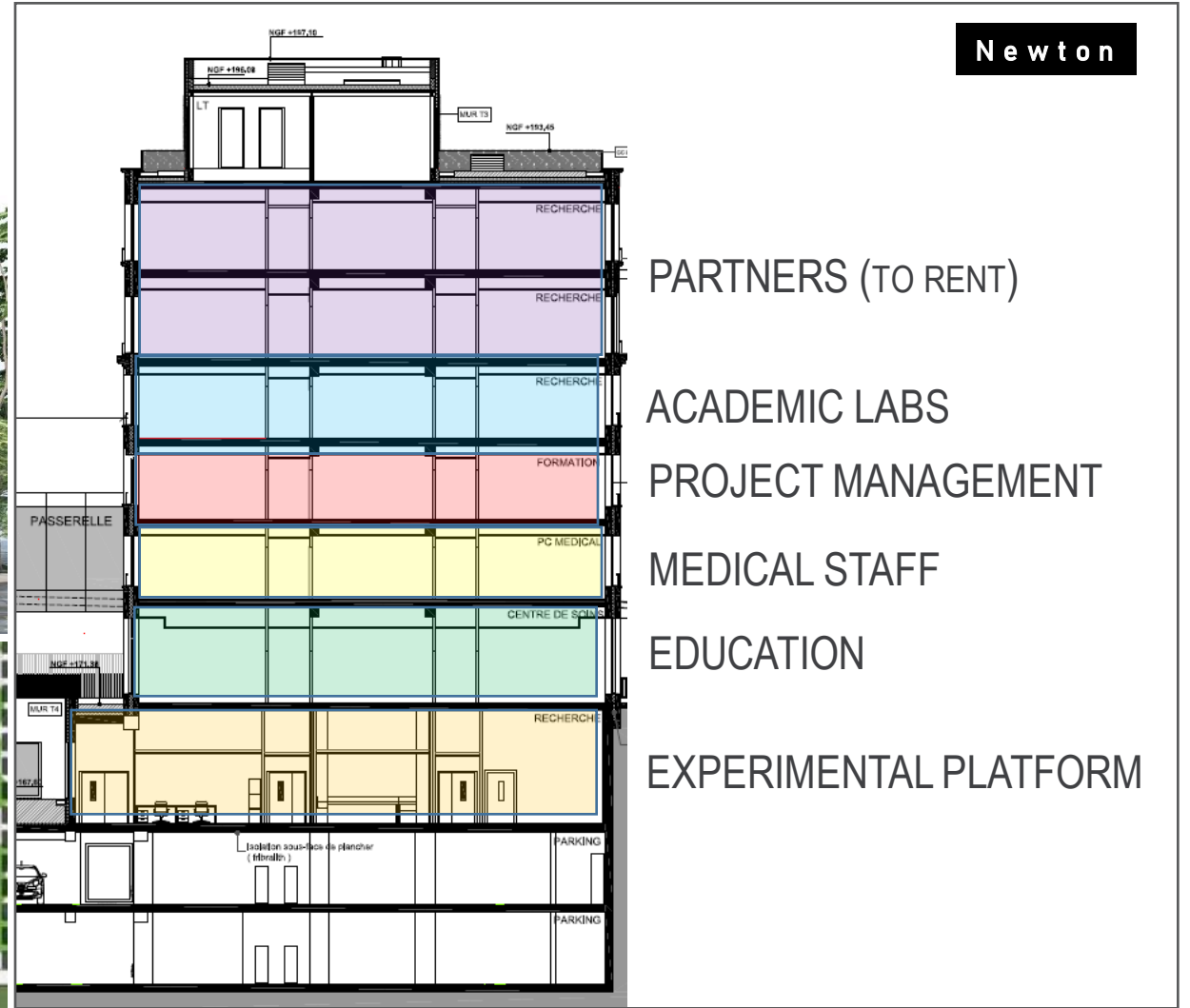
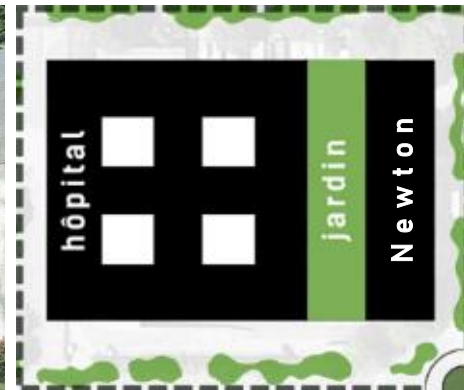
- **Biobank** NF 96-900

- **Conference and meeting rooms** (including AV connection)

- **Simulation** 3D-printed anatomy, Angiomentor, Echo4D, endoscopy-box



# New building – 2026



# Team



**Antoine Agathon, PhD**  
Director research & Innovation



**Prof Elie Azria, MD PhD**  
Gynecologist & obstetrician  
President of Ethical Committee



**H el ene Beaussier, PharmD PhD**  
Head of clinical research department



**Prof Julien Guihaire, MD PhD**  
Cardiac surgeon  
Medical supervisor Preclinical research



**Benoit Decante**  
Head of preclinical department



**V eronique Audras**  
Head of Continuing Medical Education



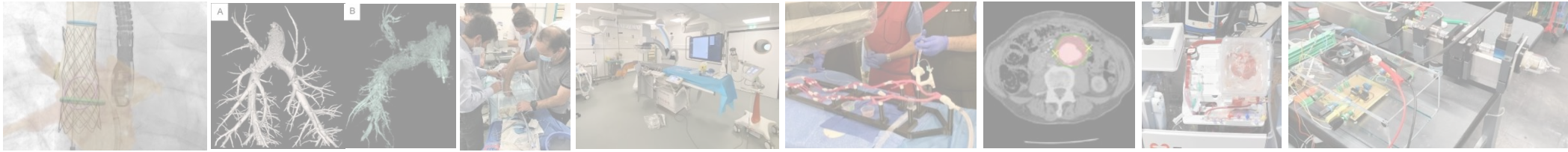
**Prof Olaf Merci, MD PhD**  
Thoracic Surgeon  
Medical supervisor MALIC



**Laure Aubr e, Eng, PharmD**  
Project Manager MALIC

# Credentials

Académics	Start-ups	SME	Industry
IGR	iPerf	Institut Georges Lopez	Microport CRM
APHP Kremlin Bicêtre	Artedrone	Transmedics	Medtronic
APHP Antoine-Béclère	Robeauté	Penumbra	GE Healthcare
HIA Percy	IGS / PERLA	Sophysa	Gore
APHP Necker	Eden Microfluidic	Andratec	COOK
APHP Lariboisière	Heptamed	Archimmed	Abbott
Foch	3Deus	Distal Motion	Terumo
INSERM U999	Caranx	BridgeToLife	Edwards
IRSN	Sensome	TransHitBio	Boston Scientific
	Predisurge	Venus Medtech	Bentley
		Vivasure	Marle
		Centerline	
		Incepto	



[drif@ghpsj.fr](mailto:drif@ghpsj.fr)

Confidentiel