

**Master 2 Musculo-Skeletal system, Locomotion, Exercise (MuSkLE)**



Université Claude Bernard



Lyon 1



**Head(s):** Vincent Pialoux (Professor, University Lyon 1) & Rémi Mounier (Director of Research, CNRS)

**Key words:** Musculo-Skeletal system, Movement, Health, Physical Activity, Organism, Model

### **Academic & research consortium:**

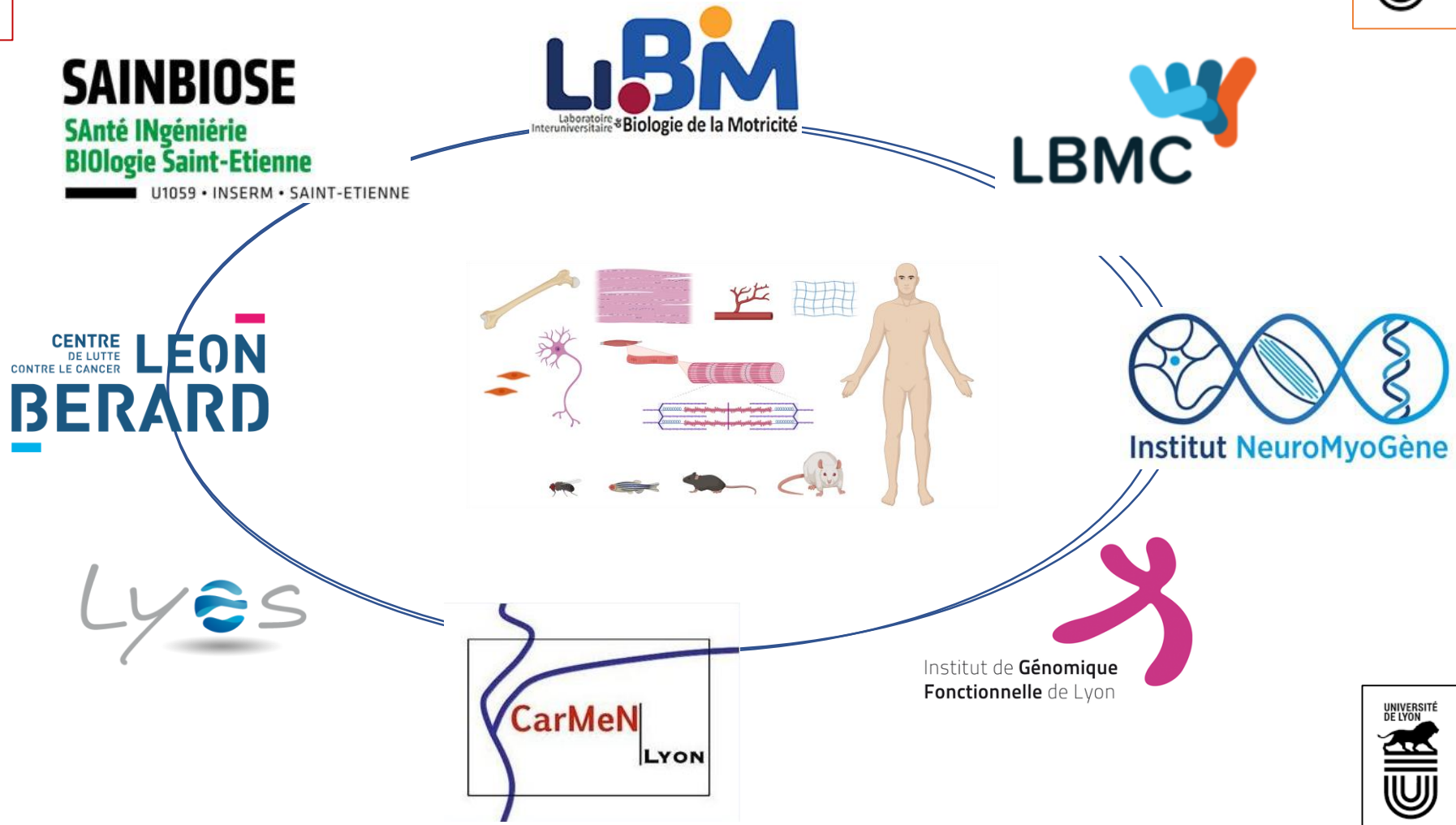
- ✓ **18 research teams in Lyon and Saint-Etienne** working on the Musculo-Skeletal system, Locomotion & Exercise from 8 research laboratories
- ✓ MuSkLE graduate school relies on **11 master pathways** from 2 Universities (Lyon & St-Etienne) et 6 faculties (Medicine, Biosciences, Mechanic & Sport Sciences)
- ✓ Strong socio-economical network in the field of health (HCL, CHU St-Etienne, Center Léon Bérard), nutrition, sports and medical equipment & professional sports teams
- ✓ Network of international partners (+ 100 international collaborations, Alliance Arqus)

### **Objectives:**

**High-level academic training, research and interdisciplinary expertise on the Musculo-Skeletal system and motor skills on the Lyon – St-Etienne site, from the molecular to the integrative level**

# 18 teams from 8 research laboratories in 3 Universities

# MuSkLE



**Master MuSkLE**

International Excellence Program

Head : Pr Vincent Pialoux

**Major points**

Field of teaching unique in France, from the molecular to the integrative level

All courses in English

20 students maximum per promotion (>50% foreigners)

**Principal field** : Musculo-Skeletal system

**Secondary field** : Biomechanics, Physiology, Biology, Sport sciences, Health, Kinesiology

**10-months internship** in full immersion in one of the 18 research teams of the MuSkLE consortium

**Incentive Scholarships** in addition to the usual internship gratification

## Program 2023-2024 of the Master 2 MuSkLE

Semester	Unit type	Full name	ECTS (credits)	Lectures (h)	Tutorials (h)	Lab work (h)
<b>Master 2 (fall)</b>	<b>1 unit among</b>	<b>Fundamental 1</b>				
M2 (fall)	Unit	Fundamental and clinical myology - ©MuSkLE	6	36		
M2 (fall)	Unit	Mecanobiology - ©MuSkLE	6	36		
M2 (fall)	Unit	Biomechanics of the locomotor system - ©MuSkLE	6	33	9	18
<b>Master 2 (fall)</b>	<b>1 unit among</b>	<b>Fundamental 2</b>				
M2 (fall)	Unit	Physiology of metabolic homeostasis -©MuSkLE	6	36		
M2 (fall)	Unit	Cardiovascular physiopathologies - ©MuSkLE	6	24	12	
M2 (fall)	Unit	Muscular cell physiology - ©MuSkLE	6	36		
M2 (fall)	Unit	Experimental and modeling principles in biomechanics-©MuSkLE	6	14	20	26
<b>Master 2 (fall)</b>	<b>1 unit among</b>	<b>Physical exercise</b>				
M2 (fall)	Unit	Exercise Physiology - ©MuSkLE	6	36		
M2 (fall)	Unit	Sciences 2:Physical activity and Chronic pathologies-©MuSkLE	6		60	
M2 (fall)	Unit	Performance optimization: biomechanical and neuromuscular factors	6	26		
<b>Master 2 (fall)</b>	<b>1 unit among</b>	<b>Integrative</b>				
M2 (fall)	Unit	Pharmacology, toxicology & study models - ©MuSkLE	6	34,5	25,5	
M2 (fall)	Unit	Advanced exercise physiology and biomechanics-©MuSkLE	6		45	
M2 (fall)	Unit	Comparative physiology in extremet environment-©MuSkLE	6	36		
M2 (fall)	Units	Motor disability and optimization of motor function-©MuSkLE	6	36		
<b>Master 2 (fall)</b>	<b>1 unit among</b>	<b>Specific</b>				
M2 (fall)	Unit	Sciences 1:Muscular Biomechanic-©MuSkLE	6		60	
M2 (fall)	Unit	Designing animal research: Certificate in laboratory animal sciences Level1/B.	6	44	6	6
M2 (fall)	Unit	Metabolic and Nutritional Physiopathologies -©MuSkLE	6	24	12	
M2 (fall)	Unit	Functional investigation: from gene to patient - ©MuSkLE		36		
M2 (fall)	Unit	Physiology of energy homeostasis	6	24	12	
<b>Master 2 (spring)</b>	<b>Unit</b>	<b>Internship in Laboratory</b>	30			910

## Informations

Master 2 MuSkLE pathway graduates for 3 Mentions of Master depending academic history and study field :

- Integrative Biology and Physiology (BIP)
- Training and Optimization of Sports Performance (EOPS)
  - Mechanics (Mécanique)

Email: [BALP.Master\\_MuSkLE@univ-lyon1.fr](mailto:BALP.Master_MuSkLE@univ-lyon1.fr)

## How to apply

<https://ecandidat.univ-lyon1.fr/lyon1.fr/>

D-line: June 19<sup>th</sup>, 2023

## Major requirements (non-exhaustive list)

- 1 year of Master obtained before July 2023 in the field of Biology, Biomechanics, Health, Kinesiology, Medicine, Physiology, Sport sciences, or any field related to musculo-Skeletal system
  - Excellence of the academic background
  - Internship experiences and technical skills in research
    - Letter of motivation
- Advanced contact with one of the team of the consortium MuSkLE (see

<https://docs.google.com/document/d/1KTlrMm0mFlgWO79mP7et6Tvq0yzlJjwjiicjvnaAgyc/edit?usp=sharing>)