

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



Université Claude Bernard



Lyon 1



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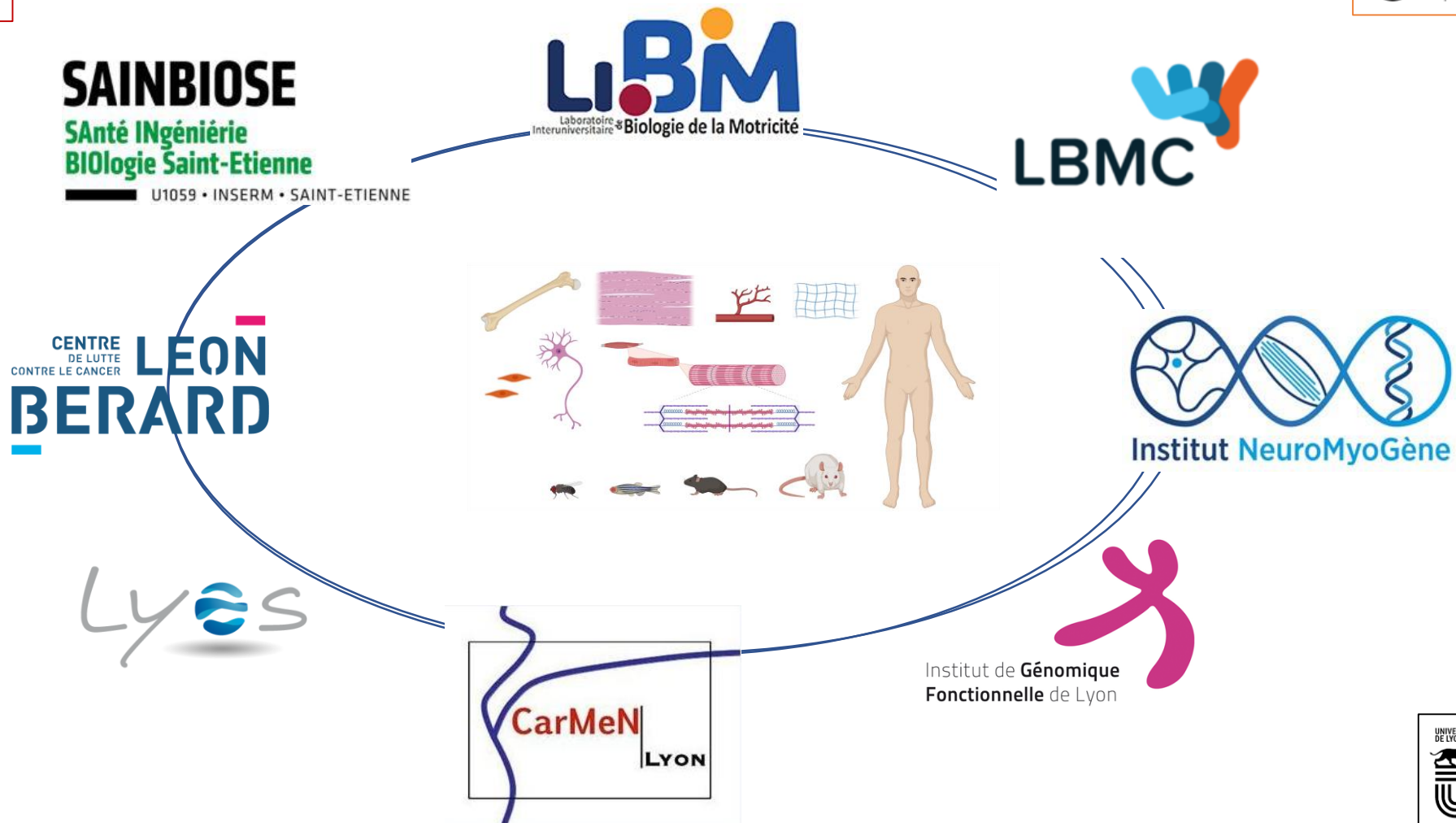
Keys words: Musculo-Skeletal system, Motricité, Health, Physical activity, organism, model

Ecosystem academic / research:

- ✓ **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-economic network in the field of health (HCL, CHU St-Etienne, Center Léon Bérard), nutrition, sports and medical equipment & professional sports clubs
- ✓ Network of international partners (+ 100 international collaborations, Alliance Arqus)

Objectives :

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



Master MuSkLE

International Excellence Program

Head : Pr Vincent Pialoux

Major pedagogical 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

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

Incentive Scholarships cumulative to usual internship gratification

Program 2023-2024 of Master 2 MuSkLE

Semester	Units	Full name	ECTS (credits)	Lectures (h)	Tutorials (h)	Lab work (h)
Master 2 (fall)	1 unit among					
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
Master 2 (automne)	1 unit among					
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
Master 2 (automne)	1 unit among					
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		
Master 2 (automne)	1 unit among					
M2 (fall)	Units	Pharmacology, toxicology & study models - ©MuSkLE	6	34,5	25,5	
M2 (fall)	Units	Advanced exercise physiology and biomechanics-©MuSkLE	6		45	
M2 (fall)	Units	Comparative physiology in extreme environment-©MuSkLE	6	36		
M2 (fall)	Units	Motor disability and optimization of motor function-©MuSkLE	6	36		
Master 2 (automne)	1 UE parmi					
M2 (fall)	Units	Sciences 1:Muscular Biomechanic-©MuSkLE	6		60	
M2 (fall)	Units	Designing animal research: Certificate in laboratory animal sciences Level1/B.	6	44	6	6
M2 (fall)	Units	Metabolic and Nutritional Physiopathologies -©MuSkLE	6	24	12	
M2 (fall)	Units	Functional investigation: from gene to patient - ©MuSkLE		36		
M2 (fall)	Units	Physiology of energy homeostasis	6	24	12	
M2 (spring)	Units	Internship in Laboratory	30			

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)

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How to candidate

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

D-line: June 19th, 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 experience in research laboratories and technical skills
 - 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>)