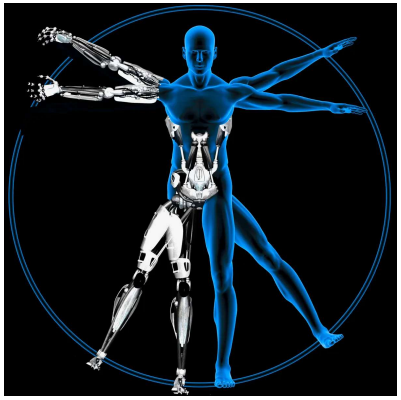
TC4: Integrative Physiopathology (HAV919V)



Credits : 5

Stefan Matecki & Florence Perrin

Objectives: Biological mechanisms involved from the cell to the body in chronic diseases of the XXI century. Challenges and future therapeutic developments.

Bionic: artificial materials and methods to produce activity/movement in a human

https://masterbs.edu.umontpellier.fr/

Registration: Julie Mares

Parcours / semester 9 / TC4

julie.mares@umontpellier.fr

Stefan Matecki :
stephan.matecki@umontpellier.fr

Florence Perrin :
florence.perrin@umontpellier.fr

Planning
Names

Florence Perrin

Stephan Matecki

Crédits : 5 ECTS

TC4_2023_Planning – VND.OPENXMLFORMATS-OFFICEDOCUMENT.WORDPROCESSINGML.DOCUMENT 20 Ko

Intervenants

S. Matecki

A. Meli

Y. Gerber

O. Jonquet

A. Kheddar

Courses in **English** and/or French

Courses by speakers in basic and clinical research

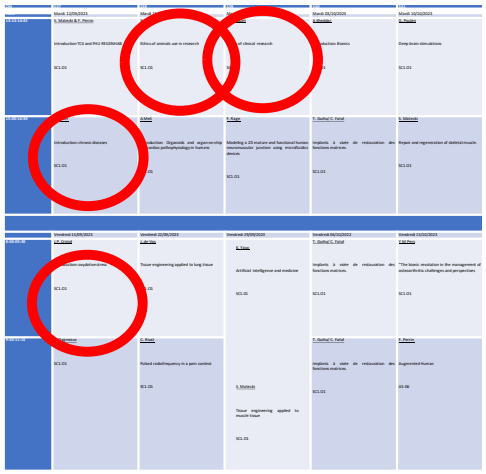
Tuesdays PM (13:15–16:30) & Fridays AM (8:00-11:15)

Starts Tuesday 12th of September, ends Friday 10th of October

Exams : 100 % written

Program

- Part 1: common features of chronic diseases of the XXI century, oxidative stress, ethics. (6 hrs)



Introduction: chronic diseases

Pr. L. Visier, Professor in Sociology, Faculty of Medicine, UM

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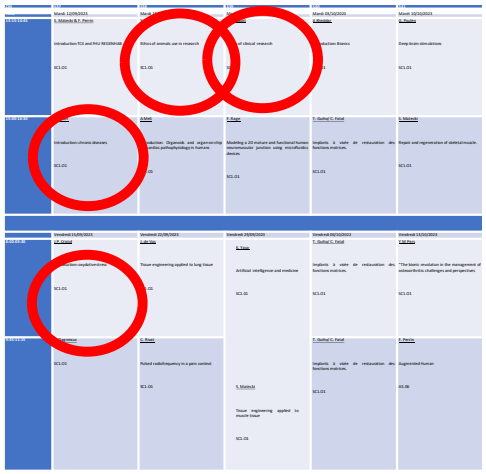

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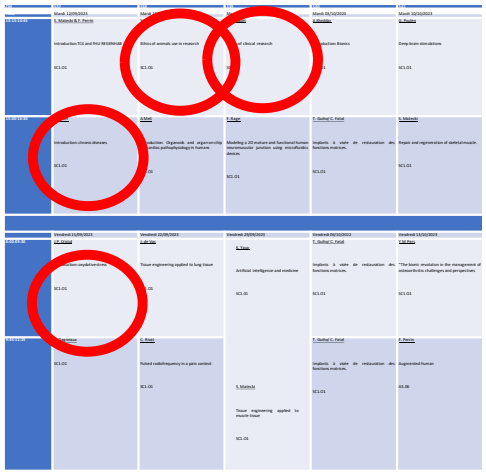

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Ethics of animals use in research

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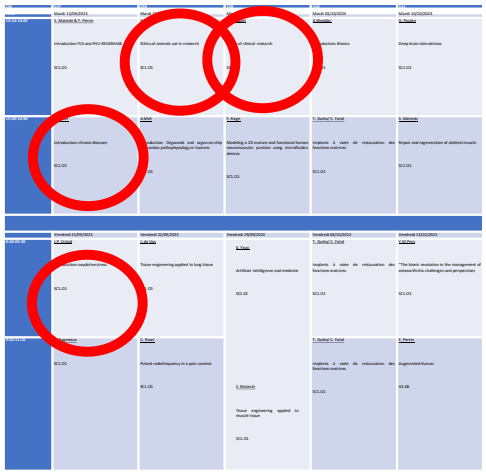

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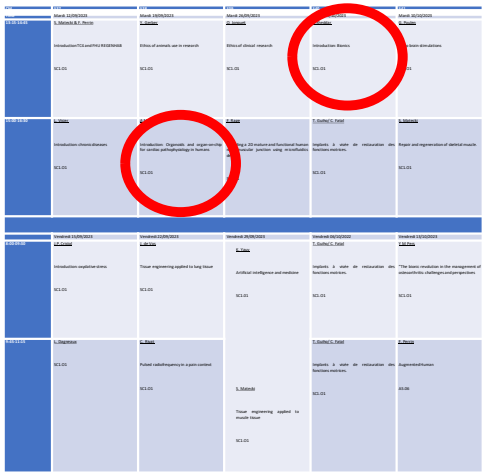
Dr. Y Gerber, Dr. in Neuroscience, Faculty of Science, UM

Ethics of clinical research

Pr. O. Jonquet, Professor in Medicine, Faculty of Medicine, UM

Program

Part 2: general introduction on bionics and organoids. (3 hrs)



Introduction: Bionics

Dr. A Kheddar, Robotics Department

Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier (**LIRMM**)

Program

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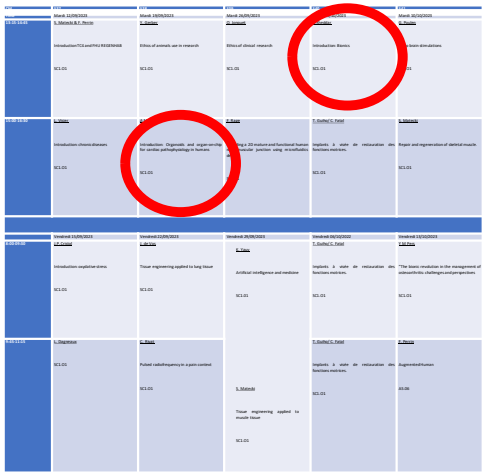
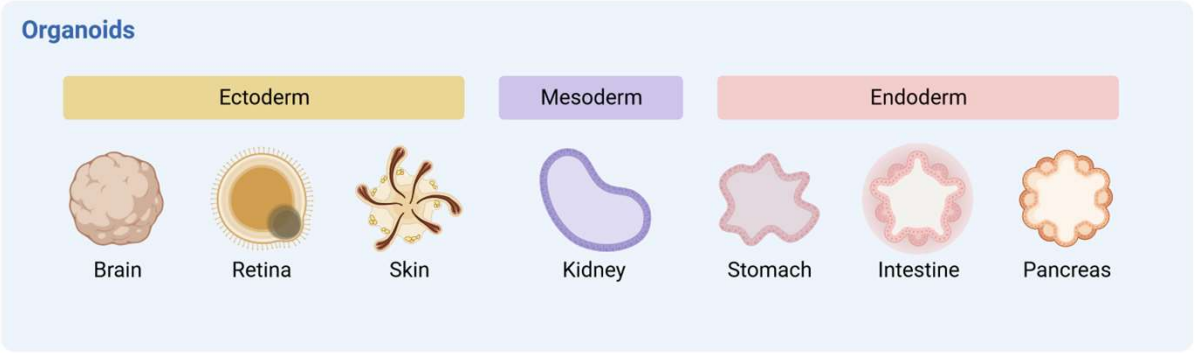


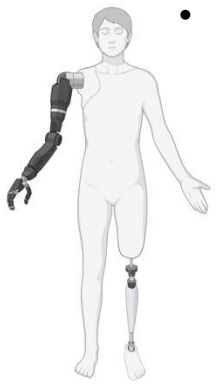
Introduction: Organoids and organ-on-chip for cardiac pathophysiology in humans

Dr. A. Meli, INSERM, Head of the organoid platform at Biocampus



Program

- Part 3: bionic and organoids in biological systems (cardiac, nervous, muscular, respiratory, osteo-articular), artificial intelligence. (18 hrs).
  - Electrical stimulations
  - Prothesis
  - Exoskeleton
  - Organoids



The augmented knee: Myth or reality ?

Pr. L. Dagneaux, Professor in Medicine,

orthopedic surgery, Faculty of Medicine, UM

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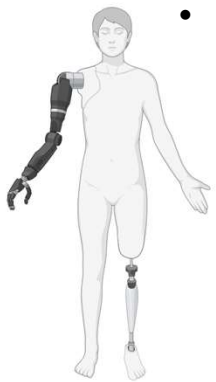

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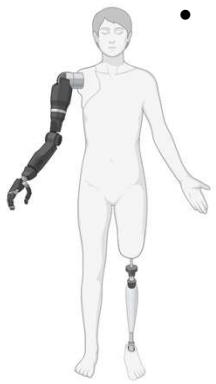

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Cell therapy, Faculty of Medicine, IRMB, UM

Pulsed radiofrequency in a pain context

Dr. C. Rivat, Dr. in Neuroscience, Faculty of Science, UM

Program

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  Modeling a 2D mature and functional human neuromuscular junction using microfluidics devices

  Dr. F. Rage, Institut de Génétique Moléculaire de Montpellier, UM.

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  Artificial intelligence and medicine

  Dr. K. Yauy, Faculty of Medicine, Precision medicine & AI specialist, UM.

  Tissue engineering applied to muscle tissue

  Pr. S. Matecki, Professor in Medicine, Pediatric Functional Investigation, PhyMedExp, Faculty of Medicine, UM

Program

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Implants to restore motor function

Dr. T. Guiho, LIRMM, UM.

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The bionic revolution in the management of osteoarthritis: challenges and perspectives

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Augmented human

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FHU REGNEHAB : Meeting Friday 1st of December