DIVA
EXPERTISE

Your Research Partner
on Human Adipose Tissue

DIVA Expertise

First in human adipose tissue modelization

- Leader in applied research on human adipose tissue

  More than 15 year-knowledge of physiology and physiopathology

- High-biotech plateform

  Specialized in biological modelization and characterization of human adipose tissue

An unique and personalized support of the research, from the Cell to Humans

- Innovative french biotech

  Based in Toulouse, in the Biotechnologies Center of Pierre Potier

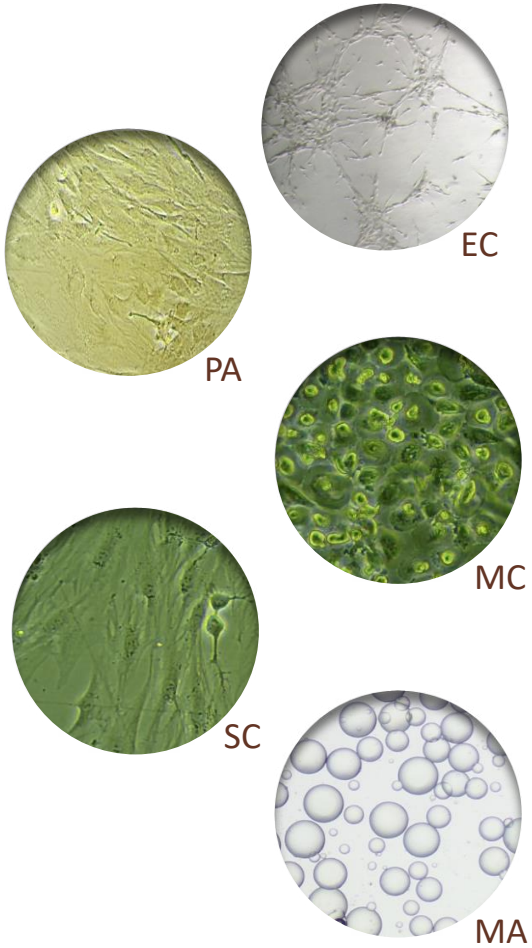
- Network of multidisciplinary partners

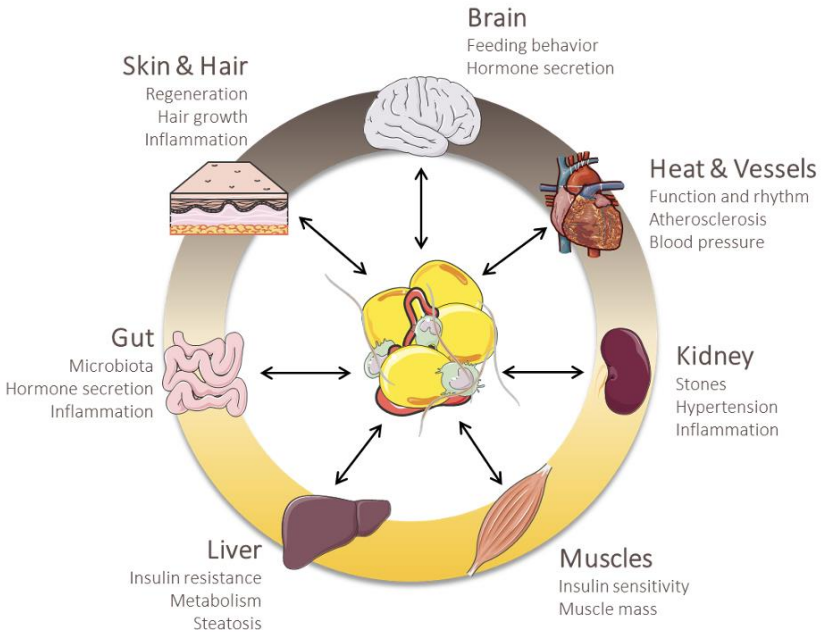
  Medical, academic, preclinical and clinical partners

Human adipose tissue

The most represented tissue in human body with different localizations : visceral, sub-cutaneous

- A high cellular heterogeneity :
  - Mature adipocytes (MA)
  - Preadipocytes (PA)
  - Endothelial cells (EC)
  - Immune cells like macrophages (MC)
  - Stem cells (SC)



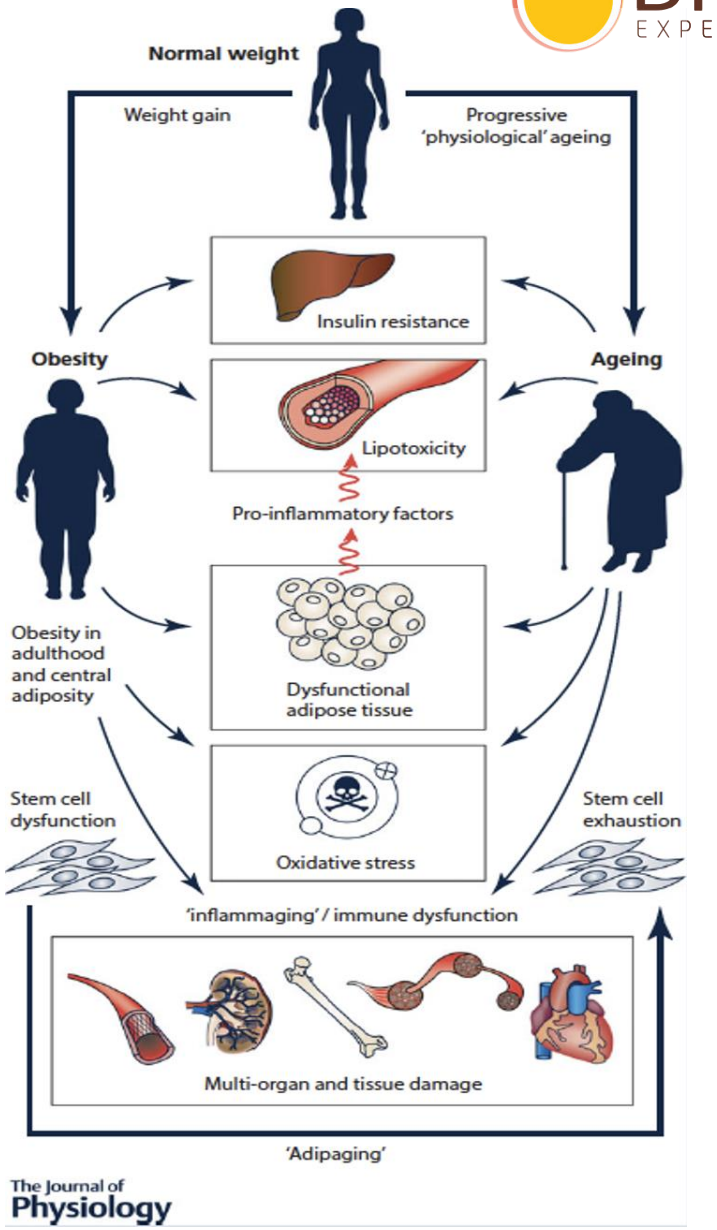


- A multi-functional organ :
  - Energy storage
  - Mechanical protection
  - Endocrine function
  - Thermogenesis

Adipose tissue, target of obesity and ageing

Aging and Obesity share several common causative mechanisms related to a dysfunctional adipose tissue/adipaging :

- Metabolic disorders,
- Multi-organ and tissue damage,
- Oxidative stress,
- Immune dysfunction and
- Systemic and low-grade chronic inflammation/inflammaging.



From LM Perez *et al,* the journal of Physiology (2016)

DIVA Team

EXPERTS

DANIÈLE LACASA
Co-Founder
Expert in fundamental research of human adipose tissue

JEAN-MARC MAURETTE
Co-founder
Expert in industrial research

JEAN-PHILIPPE BASTARD
Co-founder
Expert in biomedical research

OPERATIONAL TEAM

MAYOURA KEOPHIPHATH
Co-founder & CEO
Expert in applied research of human adipose tissue

MARION BOURDENS
Laboratory Manager
Tests & studies

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Project Manager Assistant
Tests & Studies,

LINH-TRANG NGUYEN
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R&D Engineer

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Executive Assistant

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Laboratory Technician

JULIETTE BONILLO
Project Manager Assistant (internship)

SCIENTIFIC BOARD

BÉNÉDICTE GABORIT, Pr
Endocrinology, obesity and diabetes

ANNE BOULOUMIÉ, PhD
Microenvironment of adipose tissue in metabolic diseases

BRUNO FEVE, Pr
Lipodystrophy and metabolic adaptation

CHRISTIAN DANI, PhD
Stem cells and differentiation
Adipose tissue for regenerative medicine

RÉMY BURCELIN, PhD
Microbiota and Metabolic diseases

DIVA Network

BIOBANKING

SURGERY

MEDICINE

COORDINATION

DIVA EXPERTISE

RESEARCH

ACADEMIC

PRECLINICAL

CLINICAL

DIVA Services

DIVA EXPERTISE

DIVA PLATFORM

BIOBANK

Preparation and supply of biological materials derived from human adipose and skin tissues

TESTING & STUDIES

Evaluation of product efficacy on adipose and skin models

R&D

Customized R&D for co-development of new models or new tests

ANALYSES

Characterization of adipose tissue samples collected from *in vivo* studies

CONSULTANCY

Coordination from preclinical to clinical studies

Scientific valorization

DIVA Biobank

DIVA EXPERTISE

Partnerships with 6 clinics/hospitals

Collaborations with 10 surgeons

Up to 5 targeted surgeries / week

Pre-qualified

- Age
- Body Mass Index
- Gender
- Phototype
- Anatomical localization
- Medical history

Diversified

- Human Primary Cells
- Protein and RNA extracts
- Histological slides of tissue
- Conditioned media

Pre-characterized

- Cytotoxicity
- Proliferation
- Differentiation
- Concentration of adipokines or cytokines

6 cell types

More than 3000 vials

More than 200 donors

DIVA Platform

DIVA Platform

Selection of donor criteria

1

SELECTION

- Man / woman
- Young / Aged
- Lean / Obese
- Abdomen, face, thigh
- Phototype I, II, III, IV

Screening or mechanistic studies

2

MODELIZATION

- 2D/3D-cultures of human cells
- Co-culture of different cell types
- Culture of human skin/adipose explant
- Reproduction of microenvironment/stress

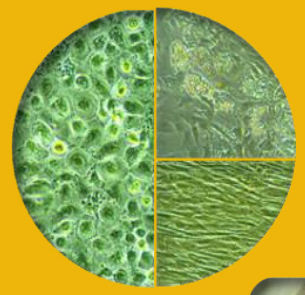
Complete biological characterization

3

CHARACTERIZATION

- Biochemical analyses
- Western Blot
- Real Time PCR
- Immunofluorescent/bright field microscopy
- (immuno)histochemistry
- Oxygen consumption

DIVA Models

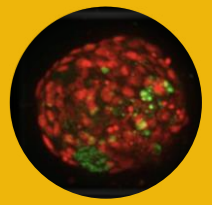


2D Cell cultures

- Preadipocytes
- Macrophages
- Fibroblasts

3D Cell cultures/Co-cultures

- DIVA Spheres™: Preadipocyte spheroids
- DIVA Caps™ : Mature adipocyte capsules
- DIVA Skin Caps : co-culture of adipocytes and fibroblasts



Tissue cultures

- Exadex-WAT™ : 30-day explant of adipose tissue*
- DIVA Skin™ : 3-layer explant of skin
- DIVA Gut : biphasic culture of intestinal and adipose cells

* Developed by our partner Exadex-Innov

DIVA Tests

Adipocyte development

- Proliferation
- Differentiation
- Beigeing
- Vascularization

Adipocyte alterations

- Inflammation
- Fibrosis/Matricial remodeling
- Oxidative stress
- Senescence

Adipocyte metabolism

- Lipogenesis
- Lipolysis
- Bioenergetics
- Secretome

Adipocyte interactions

- Fibroblasts
- Endothelial cells
- Muscle cells
- Intestinal cells

DIVA Benefits

ETHICAL AND BIOMIMETIC SCIENCE

- Human models as alternative to animal experimentation
- High biological relevance

OPTIMIZED AND RELIABLE STUDIES

- Miniaturization in 96-well format
- Multiparametric approach
- Positive & negative controls
- Conditions in triplicates

PERSONALIZED AND COMPLETE R&D SUPPORT

- From biobanking to testing
- From pre-validated models to customized models
- From cell studies to clinical trials

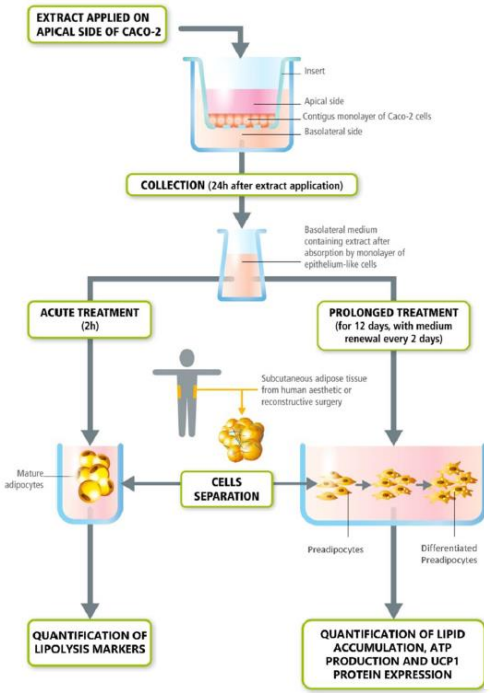
DIVA Screening

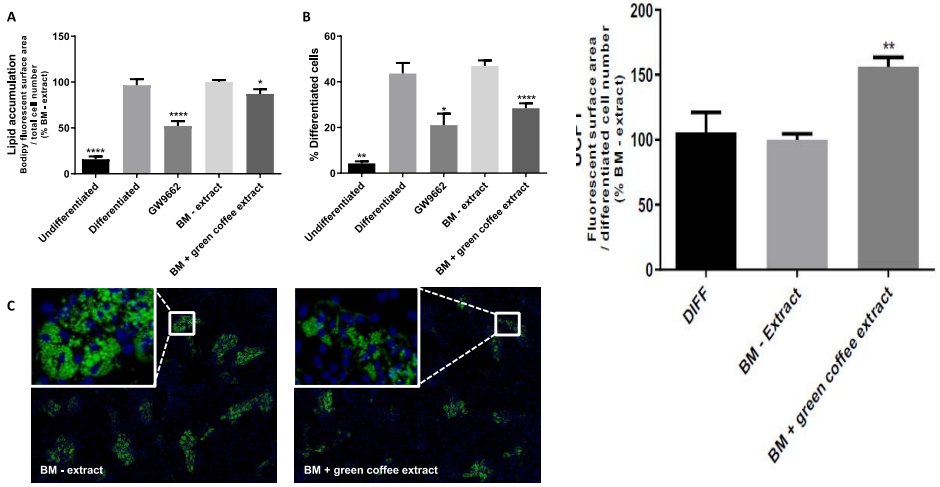
European Journal of Nutrition
https://doi.org/10.1007/s00394-021-02794-8

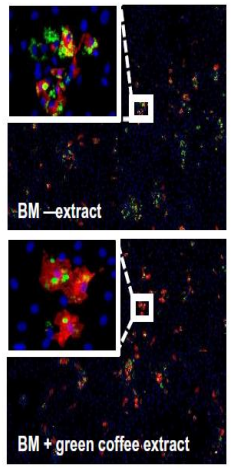
ORIGINAL CONTRIBUTION

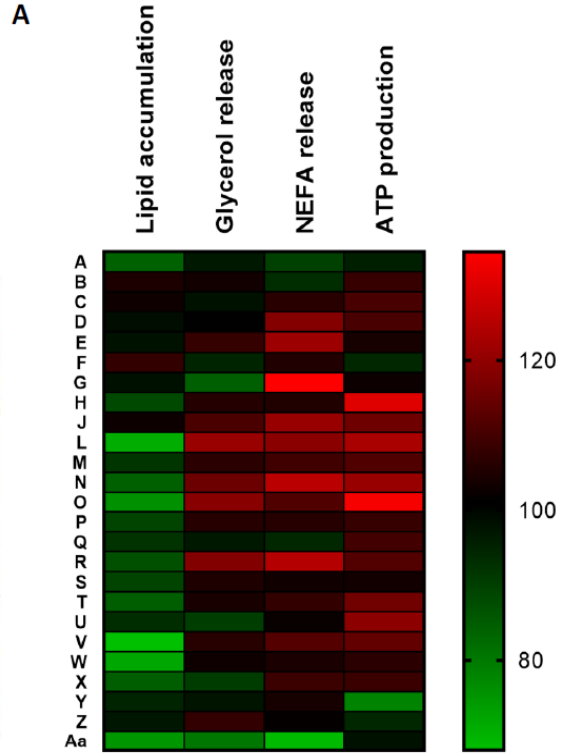
Screening for anti-adipogenic, pro-lipolytic and thermogenic plant extracts by models associating intestinal epithelial cells with human adipose cells

Damien Guillemet[1] · Chloé Belles[2] · Aurélie Gomes[3] · Vincent Azalbert[4] · Mathilde André[2] · Nourdine Faresse[2] · Rémy Burcelin[4] · Jean-Michel Lagarde[3] · Danièle Lacasa[2] · Mayoura Kéophiphath[2]









DIVA Mechanistics

Received: 29 January 2020 | Revised: 22 July 2020 | Accepted: 22 September 2020
DOI: 10.1111/jocd.13794

ORIGINAL CONTRIBUTION

JCD Journal of Cosmetic Dermatology WILEY

A hyaluronic acid-based filler reduces lipolysis in human mature adipocytes and maintains adherence and lipid accumulation of long-term differentiated human preadipocytes

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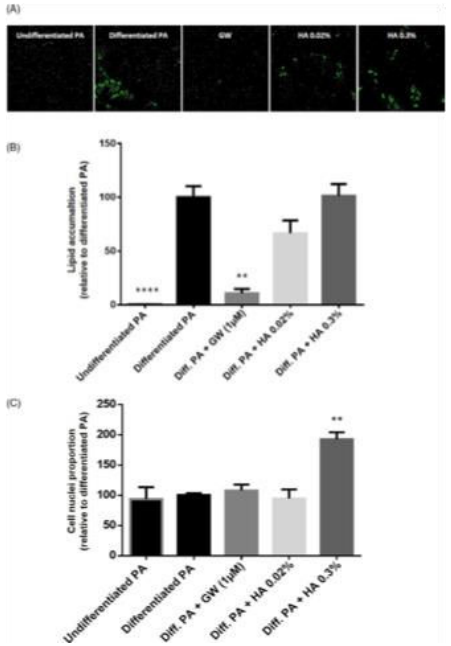

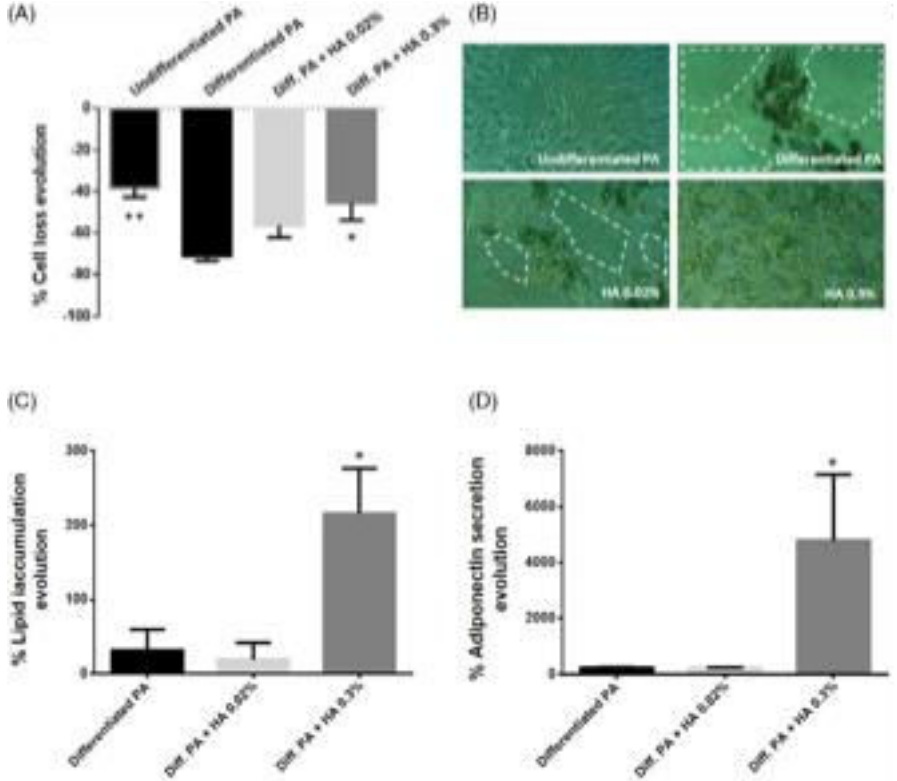

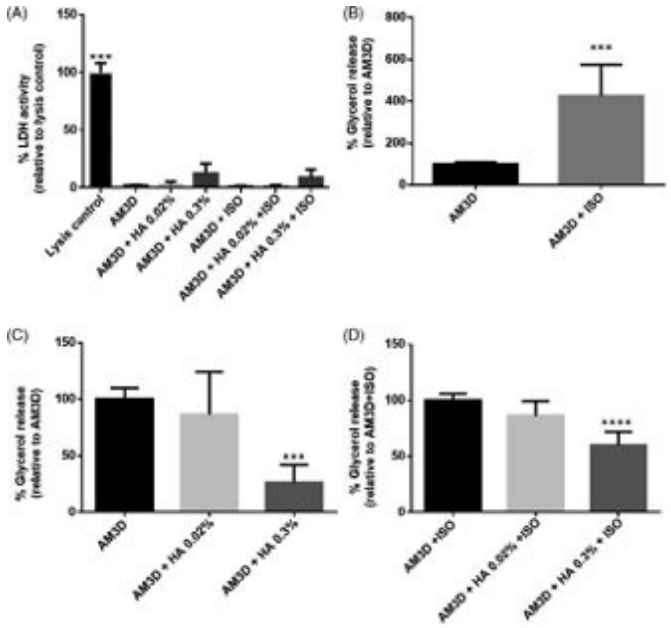

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DIVA
EXPERTISE

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