

Hubert VIDAL



Summary

Hubert Vidal is Research Director at INSERM , the French Biomedical Research Institute and is the head of CarMeN laboratory "Cardio-Metabolism, Diabetes and Nutrition", INSERM Unit 1060 in Lyon, France.

His research works focus on the mechanism of action of insulin and insulin resistance in the context of metabolic diseases (obesity, diabetes) and also on the epigenetic and genomic mechanisms of adaptation to the environment in humans (nutrition, pollution, physical activity, microbiota). He was a pioneer in Europe in the early 2000s in the development of nutrigenomics in humans and his team demonstrated the presence of alterations in the regulation of a number of key genes in the skeletal muscle and the adipose tissue of patients with type 2 diabetes and in obesity. The originality of the approach since then is to develop a translational biomedical research, based on a strong collaboration between biologists, basic scientists and clinicians with the Human Nutrition Research Center (CRNH) Rhône-Alpes

He is author or co-author of more than 250 publications (h index : 61) and was recipient of the Young Researcher Award of the Morgagni prize in 2002 and of the Appolinaire Bouchardat Prize in 2004.

Curriculum vitae

Date and place of birth : 25/01/1963, Montpellier, France
Citizenship : French

Administrative Position : **INSERM Director of Research** (recruited at INSERM 1/09/1990)

Working address : **CarMeN Laboratory**
« Cardio-Metabolism, Diabetes and Nutrition »
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Function

Director of CarMeN Laboratory since January 2011
(5 research teams, 180 members)

Research activities :

- Since Jan. 2011 **Director of CarMeN Laboratory and
Group leader of Team 1** : *Nutritional Adaptations, Environment and Diabetes*
- 2006- 2010 **Director of Research Unit (UMR) INSERM U-870 / INRA 1235 / Lyon 1
University / INSA de Lyon** « *Metabolic Regulations, Nutrition and Diabetes* »
Group leader of Team : *Nutritional Adaptations, Environment and Diabetes*
- 1995-2006 **UMR INSERM U-449 / INRA 1235 / Lyon 1 University**
Group leader : " *Molecular Mechanisms of Insulin Resistance and Nutritional
Regulation of Gene Expression*"
- 1993-1994 **INSERM Unit 197, Research Associate (CR) in the team:**
"Régulation of glucide and lipid metabolism"
- 08/91-12/92 **Postdoctoral training 2:** Hormones and Metabolism Laboratory, Institute
of Cellular Pathology, Université Catholique de Louvain, Brussels,
Belgium (Pr. Louis Hue and Pr. Guy Rousseau).
- 12/88-08/90 **Postdoctoral training 1:** Laboratory of Endocrinology and Metabolism,
Department of Nutrition, Montreal University, Montreal, Canada
(Pr. Gérald Van de Werve).
- 10/85-11/88 **PhD in Biochemistry:** Claude Bernard - Lyon 1 University
*"Regulation of glucose metabolism by vasoactive intestinal peptide in isolated
enterocytes "* (INSERM Unit 197, Supervisor : Pr. J- P. Riou).

Education

- 1997 **Habilitation à Diriger des Recherches**
Claude Bernard - Lyon 1 University, 11/09/1997
- 1988 **Diplôme de Doctorat (PhD)**
Claude Bernard - Lyon 1 University, 1/07/1988,

Area of expertise :

Insulin action and signaling, regulation of gene expression, nuclear receptor, lipid metabolism, nutrigenomics, type 2 diabetes, obesity, metabolic diseases, nutrition, probiotics and microbiota.

Other activities

- 2003-2006 President of the Scientific Committee of ALFEDIAM
(French Association for the Study of Diabetes and Metabolic Diseases)
- 1999-2002 Coordinator of the "Transcriptomics" facility of Rhône-Alpes Genopole
- 2009-2013 Member of the international scientific council of the Nordic Center of
Excellence SYSDIET (System biology and Nordic Diet)
- 2010- French representative of the Scientific Council of NEW INDIGO (ERA-NET
Europe-India)
- 2012 Co-Founder of the European Research Center for Nutrition Safety and Health
- 2018-2020 Member of the European Space Agency (ESA) topical team on "nutrition and
probiotics strategies for space flights"
- 2002-2007 Associated Editor and Member of the Advisory Board of *Diabetologia*

Distinctions : - Young Investigator Award of the G.B. Morgagni Price in 2002
- Appolinaire Bouchardat Price in 2004

Invitations : 116 seminars or conferences (54 outside France)

Publications: > 250 original publications in international peer-reviewed journals, including : 1 Science, 1 Lancet, 2 Nat.Med., 5 J. Clin. Invest, 1 Plos Genet., 14 J. Biol. Chem., 20 Diabetes, 19 Diabetologia, 15 J. Clin. Endocrinol. Metab., 4 Faseb J., 6 Amer J Clin Nut.

25 reviews.

H factor : 61 / citations : 14325

LIST OF PUBLICATIONS (2015-2018)

2018

Tubbs E, Chanon S, Robert M, Bendridi N, Bidaux G, Chauvin MA, Ji-Cao J, Durand C, Gauvrit-Ramette D, **Vidal H**, Lefai E, Rieusset J.

Disruption of Mitochondria-Associated Endoplasmic Reticulum Membrane (MAM) Integrity Contributes to Muscle Insulin Resistance in Mice and Humans.

Diabetes. 2018 Apr;67(4):636-650.

Bétry C, Meugnier E, Pflieger M, Grenet G, Hercberg S, Galan P, Kesse-Guyot E, **Vidal H**, Laville M.

High expression of CPT1b in skeletal muscle in metabolically healthy older subjects.

Diabetes Metab. 2018 Feb 12. [Epub ahead of print]

Julien B, Pinteur C, Vega N, Labaronne E, **Vidal H**, Naville D, Le Magueresse-Battistoni B.

Evidence for estrogeno-mimetic effects of a mixture of low-dose pollutants in a model of ovariectomized mice.

Environ Toxicol Pharmacol. 2018 Jan;57:34-40.

Cavalcanti Neto MP, Aquino JS, Romão da Silva LF, de Oliveira Silva R, Guimarães KSL, de Oliveira Y, de Souza EL, Magnani M, **Vidal H**, de Brito Alves JL.

Gut microbiota and probiotics intervention: A potential therapeutic target for management of cardiometabolic disorders and chronic kidney disease?

Pharmacol Res. 2018 Feb 14. pii: S1043-6618(17)31050-2. Review.

2017

Benoit B, Meugnier E, Castelli M, Chanon S, Vieille-Marchiset A, Durand C, Bendridi N, Pesenti S, Monternier PA, Durieux AC, Freyssenot D, Rieusset J, Lefai E, **Vidal H**, Ruzzin J.

Fibroblast growth factor 19 regulates skeletal muscle mass and ameliorates muscle wasting in mice.

Nat Med. 2017 Aug;23(8):990-996.

Guimarães KSL, de Araújo EV, Aquino JS, Gadelha DA, Balarini CM, Costa-Silva JH, Magnani M, **Vidal H**, Braga VA, de Brito Alves JL.

Effect of maternal dyslipidaemia on the cardiorespiratory physiology and biochemical parameters in male rat offspring.

Br J Nutr. 2017 Dec;118(11):930-941..

Lima RPA, do Nascimento RAF, Luna RCP, Persuhn DC, da Silva AS, da Conceição Rodrigues Gonçalves M, de Almeida ATC, de Moraes RM, Junior EV, Fouilloux-Meugnier E, **Vidal H**, Pirola L, Magnani M, de Oliveira NFP, Prada PO, de Carvalho Costa MJ.

Effect of a diet containing folate and hazelnut oil capsule on the methylation level of the ADRB3 gene, lipid profile and oxidative stress in overweight or obese women.

Clin Epigenetics. 2017 Oct 13;9:110.

Herzig KH, Leppäluoto J, Jokelainen J, Meugnier E, Pesenti S, Selänne H, Mäkelä KA, Ahola R, Jämsä T, **Vidal H**, Keinänen-Kiukaanniemi S.

Low level activity thresholds for changes in NMR biomarkers and genes in high risk subjects for Type 2 Diabetes.

Sci Rep. 2017 Sep 18;7(1):11267s

Le Magueresse-Battistoni B, Labaronne E, **Vidal H**, Naville D.

Endocrine disrupting chemicals in mixture and obesity, diabetes and related metabolic disorders.

World J Biol Chem. 2017 May 26;8(2):108-119.

Vors C, Drai J, Pineau G, Laville M, **Vidal H**, Laugerette F, Michalski MC. Emulsifying dietary fat modulates postprandial endotoxemia associated with chylomicronemia in obese men: a pilot randomized crossover study. **Lipids Health Dis.** 2017 May 25;16(1):97.

Labaronne E, Pinteur C, Vega N, Pesenti S, Julien B, Meugnier-Fouilloux E, **Vidal H**, Naville D, Le Magueresse-Battistoni B.

Low-dose pollutant mixture triggers metabolic disturbances in female mice leading to common and specific features as compared to a high-fat diet. **J Nutr Biochem.** 2017 Apr 8;45:83-93.

de Brito Alves JL, Toscano AE, da Costa-Silva JH, **Vidal H**, Leandro CG, Pirola L. Transcriptional response of skeletal muscle to a low protein perinatal diet in rat offspring at different ages: The role of key enzymes of glucose-fatty acid oxidation. **J Nutr Biochem.** 2017 Mar;41:117-123.

Laforest S, Michaud A, Paris G, Pelletier M, **Vidal H**, Géloën A, Tchernof A. Comparative analysis of three human adipocyte size measurement methods and their relevance for cardiometabolic risk. **Obesity** (Silver Spring). 2017 Jan;25(1):122-131.

2016

Schwarzer M, Makki K, Storelli G, Machuca-Gayet I, Srutkova D, Hermanova P, Martino ME, Balmand S, Hudcovic T, Heddi A, Rieusset J, Kozakova H, **Vidal H**, Leulier F.

Lactobacillus plantarum strain maintains growth of infant mice during chronic undernutrition. **Science** Feb 19;351(6275):854-7

de Brito Alves JL, de Sousa VP, Cavalcanti Neto MP, Magnani M, Braga VA, da Costa-Silva JH, Leandro CG, **Vidal H**, Pirola L

New Insights on the Use of Dietary Polyphenols or Probiotics for the Management of Arterial Hypertension. **Front Physiol.** 2016 Oct 6;7:448. Review.

de Brito Alves JL, de Oliveira JM, Ferreira DJ, de Barros MA, Nogueira VO, Alves DS, **Vidal H**, Leandro CG, Lagranha CJ, Pirola L, Costa-Silva JH.

Maternal protein restriction induced-hypertension is associated to oxidative disruption at transcriptional and functional levels in the medulla oblongata. **Clin Exp Pharmacol Physiol.** 2016 Sep 9.

Chirico EN, Cataldo VD, Chauveau F, Geloën A, Patsouris D, Thézé B, Martin C, **Vidal H**, Rieusset J, Pialoux V, Canet-Soulas E.

MRI biomarkers of exercise-induced improvement of oxidative stress and inflammation in the brain of old high fat fed ApoE^{-/-} mice. **J Physiol.** 2016 Sep 19. doi: 10.1113/JP271903. [Epub ahead of print]

Di Cataldo V, Géloën A, Langlois JB, Chauveau F, Thézé B, Hubert V, Wiart M, Chirico EN, Rieusset J, **Vidal H**, Pialoux V, Canet-Soulas E.

Exercise Does Not Protect against Peripheral and Central Effects of a High Cholesterol Diet Given Ad libitum in Old ApoE^{-/-} Mice. **Front Physiol.** 2016 Oct 6;7:453.

Chriett S, Zerzaihi O, **Vidal H**, Pirola L.

The histone deacetylase inhibitor sodium butyrate improves insulin signalling in palmitate-induced insulin resistance in L6 rat muscle cells through epigenetically-mediated up-regulation of Irs1.

Mol Cell Endocrinol. 2016 Sep 13. [Epub ahead of print]

Chehimi M, Robert M, Bechwaty ME, Vial G, Rieusset J, **Vidal H**, Pirola L, Eljaafari A.

Adipocytes, like their progenitors, contribute to inflammation of adipose tissues through promotion of Th-17 cells and activation of monocytes, in obese subjects. **Adipocyte.** 2016 Jan 25;5(3):275-82.

Makino A, Hullin-Matsuda F, Murate M, Abe M, Tomishige N, Fukuda M, Yamashita S, Fujimoto T, **Vidal H**, Lagarde M, Delton-Vandenbroucke I, Kobayashi T.

Acute accumulation of free cholesterol induces the degradation of perilipin 2 and Rab18-dependent fusion of ER and lipid droplets in cultured human hepatocytes. **Mol Biol Cell.** 2016 27:3293-3304

Seyssel K, Meugnier E, Lê KA, Durand C, Disse E, Blond E, Pays L, Nataf S, Brozek J, **Vidal H**, Tappy L, Laville M.

Fructose overfeeding in first-degree relatives of type 2 diabetic patients impacts energy metabolism and mitochondrial functions in skeletal muscle.

Mol Nutr Food Res. 2016 Jul 28. [Epub ahead of print]

Theurey P, Tubbs E, Vial G, Jacquemetton J, Bendridi N, Chauvin MA, Alam MR, Le Romancer M, **Vidal H**, Rieusset J.

Mitochondria-associated endoplasmic reticulum membranes allow adaptation of mitochondrial metabolism to glucose availability in the liver.

J Mol Cell Biol. 2016 Apr;8(2):129-43

Jalabert A, Vial G, Guay C, Wiklander OP, Nordin JZ, Aswad H, Forterre A, Meugnier E, Pesenti S, Regazzi R, Danty-Berger E, Ducreux S, **Vidal H**, El-Andaloussi S, Rieusset J, Rome S.

Exosome-like vesicles released from lipid-induced insulin-resistant muscles modulate gene expression and proliferation of beta recipient cells in mice.

Diabetologia. 2016 May;59(5):1049-58

Chriett S, Le Huërou-Luron I, **Vidal H**, Pirola L.

Dysregulation of sirtuins and key metabolic genes in skeletal muscle of pigs with spontaneous intrauterine growth restriction is associated with alterations of circulating IGF-1.

Gen Comp Endocrinol. 2016 Jun 1;232:76-85.

Rieusset J, Fauconnier J, Paillard M, Belaidi E, Tubbs E, Chauvin MA, Durand A, Bravard A, Teixeira G, Bartosch B, Michelet M, Theurey P, Vial G, Demion M, Blond E, Zoulim F, Gomez L, **Vidal H**, Lacampagne A, Ovize M.

Disruption of calcium transfer from ER to mitochondria links alterations of mitochondria-associated ER membrane integrity to hepatic insulin resistance.

Diabetologia. 2016 Mar;59(3):614-23

Michaud A, Laforest S, Pelletier M, Nadeau M, Simard S, Daris M, Leboeuf M, **Vidal H**, Geloën A, Tchernof A.

Abdominal Adipocyte Populations in Women with Visceral Obesity.

Eur J Endocrinol. 2016 Feb;174(2):227-39

2015

Perrin L, Loizides-Mangold U, Skarupelova S, Pulimeno P, Chanon S, Robert M, Bouzakri K, Modoux C, Roux-Lombard P, **Vidal H**, Lefai E, Dibner C.

Human skeletal myotubes display a cell-autonomous circadian clock implicated in basal myokine secretion.

Mol Metab. 2015 Aug 6;4(11):834-845.

Vors C, Pineau G, Drai J, Meugnier E, Pesenti S, Laville M, Laugerette F, Malpuech-Brugère C, **Vidal H**, Michalski MC.

Postprandial Endotoxemia Linked With Chylomicrons and Lipopolysaccharides Handling in Obese Versus Lean Men: A Lipid Dose-Effect Trial. **J Clin Endocrinol Metab**. 2015 Sep;100(9):3427-35

Vors C, Drai J, Gabert L, Pineau G, Laville M, **Vidal H**, Guichard E, Michalski MC, Feron G.

Salivary composition in obese vs normal-weight subjects: towards a role in postprandial lipid metabolism?

Int J Obes (Lond). 2015 Sep;39(9):1425-8

Naville D, Labaronne E, Vega N, Pinteaur C, Canet-Soulas E, **Vidal H**, Le Magueresse-Battistoni B.

Metabolic outcome of female mice exposed to a mixture of low-dose pollutants in a diet-induced obesity model.

PLoS One. 2015 Apr 24;10(4):e0124015

Salvatore G, Bernoud-Hubac N, Bissay N, Debarde C, Daira P, Meugnier E, Proamer F, Hanau D, **Vidal H**, Aricò M, Delprat C, Mahtouk K.

Human monocyte-derived dendritic cells turn into foamy dendritic cells with IL-17A. **J Lipid Res**. 2015 Jun;56(6):1110-22

Véricel E, Colas R, Calzada C, Lê QH, Feugier N, Cugnet C, **Vidal H**, Laville M, Moulin P, Lagarde M.

Moderate oral supplementation with docosahexaenoic acid improves platelet function and oxidative stress in type 2 diabetic patients. **Thromb Haemost**. 2015 Aug;114(2):289-96.

Eljaafari A, Robert M, Chehimi M, Chanon S, Durand C, Vial G, Bendridi N, Madec AM, Disse E, Laville M, Rieusset J, Lefai E, **Vidal H**, Pirola L.

Adipose Tissue-Derived Stem Cells From Obese Subjects Contribute to Inflammation and Reduced Insulin Response in Adipocytes Through Differential Regulation of the Th1/Th17 Balance and Monocyte Activation.

Diabetes. 2015 Jul;64(7):2477-88.

Benoit B, Laugerette F, Plaisancié P, Géoën A, Bodenec J, Estienne M, Pineau G, Bernalier-Donadille A, **Vidal H**, Michalski MC.

Increasing fat content from 20 to 45 wt% in a complex diet induces lower endotoxemia in parallel with an increased number of intestinal goblet cells in mice. **Nutr Res**. 2015 Apr;35(4):346-56.

Vial G, Chauvin MA, Bendridi N, Durand A, Meugnier E, Madec AM, Bernoud-Hubac N, Pais de Barros JP, Fontaine É, Acquaviva C, Hallakou-Bozec S, Bolze S, **Vidal H**, Rieusset J.

Imeglimin normalizes glucose tolerance and insulin sensitivity and improves mitochondrial function in liver of a high-fat, high-sucrose diet mice model.

Diabetes. 2015 Jun;64(6):2254-64.

Morio B, Comte B, Martin JF, Chanseaux E, Alligier M, Junot C, Lyon B, Boirie Y, **Vidal H**, Laville M, Pujos-Guillot E, Sebedio JL.

Metabolomics reveals differential metabolic adjustments of normal and overweight subjects during overfeeding.

Metabolomics, 2015, 11:920-938.