

ACTIVITY REPORT



 **DigestScience**
Digestive tract diseases and nutrition
research Foundation





2

Digestive diseases currently lack complete therapeutic options or effective prevention. This is why, since 2008, the DigestScience foundation has been relentlessly raising funds to support innovative and promising research programs.

Inflammatory bowel diseases - Crohn's disease and ulcerative colitis - are the most incapacitating and painful of these digestive conditions. It should be noted that their origin remains unknown, considering that genetics play only a minor role in their onset. However, the significant variation in the frequency of such diseases over time and space, as well as their dramatic increase in emerging countries suggest that the environment plays a significant part in their development.

For this reason, our foundation seeks to fund a large-scale epidemiological study to determine the environmental causes of these diseases. This cross-cutting, multidisciplinary study will involve epidemiologists, geographers, gastroenterologists, historians, sociologists, toxicologists, biologists, and water and air quality specialists.

To make it possible, we need everyone: scientific research is not only a matter of ideas, talent or will, it is also about money! By raising the 2 million euros required to find a sustainable cure for these taboo chronic diseases, donors, together with scientists, will help put an end to the unbearable suffering of patients. Because with DigestScience, we are all researchers!

Pierre Desreumaux, MD, PhD
Chair of The Board of Directors

Digestive diseases currently affect almost one French person out of five, mostly among the young population. These poorly known and largely incurable diseases are a major public health concern, all the more so since they show an as yet unexplained increase.

Crohn's disease
Ulcerative Colitis
Celiac Disease
Irritable Bowel Syndrome or Spastic Colon

All these digestive conditions cause suffering to patients with severe consequences on their social, professional, family, school and private everyday lives!



Digestive diseases are among the most complex conditions of modern medicine. In less than 10 years, guided by a committee of European experts, DigestScience successfully contributed to the emergence of unprecedented, promising research axes.

The purpose of our foundation remains to ensure that every patient with digestive disease benefits from the best of medical research and to provide them with a global treatment option: from diagnosis to hope for recovery (unfortunately unfulfilled as for now) or prevention, and including all stages of care (better understanding of the disease, treatment adherence and acceptance, prevention and managements of side effects, appropriate use of paramedical services, etc.).

Public authorities continue to provide grants to scientific research, but these contributions remain insufficient; as a complement, DigestScience action must be pursued to allow the emergence of innovative, cross-cutting projects bringing together scientists, doctors, as well as the agri-food and pharmaceutical industries.

Our scientific committee will see to it!

Jean-Frédéric Colombel, MD, PhD

Chair of the Scientific Committee



3 millions
in Europe

700 000
people have celiac
disease in France

250,000
people have a Chronic
Inflammatory Bowel
Disease (IBD) in
France

6 millions
worldwide

10 millions
people have irritable
bowel syndrome in
France



Left to right: Edouard Roquette, Chair of Roquette Board of Directors, Pr Pierre Desreumaux, Chair of DigestScience Foundation Board of Directors and Lucien Lesaffre, Chair of Lesaffre Board of Directors.

4

A public utility foundation, DigestScience established a system of governance that makes medicine, research and patients' interests a prominent part of their decision-making process. The foundation's very small operational team is organised to ensure that the largest possible part of donations goes to research.

BOARD OF DIRECTORS

The DigestScience foundation is administered by a board of directors comprising 3 panels and a government commissioner.

Founders

- **Prof. Pierre Desreumaux**, life member.
Founder and President of DigestScience. Professor of gastroenterology at Lille School of medicine and University Hospital Centre. Founder and director of the research unit LIRIC Inserm U995. His research works won him the Inserm prize in 2005.
- **Lesaffre Group**.
A global key player, Lesaffre designs, manufactures and markets solutions for bread-making, nutrition, healthcare and environmental protection from yeasts and other fermentation-based ingredients. A family group born in northern France in 1853, Lesaffre achieves a turnover of more than 1.9 billion euros and employs 9,500 people, 2,100 of which in France.

- Roquette Frères.

A family-owned group, Roquette is a leader in specialty food ingredients and pharmaceutical excipients. The products and solutions developed by the group deliver proven health, nutritional and technological, benefits precisely tailored to the pharma, nutrition, food and selected industry markets. For over 80 years, Roquette has been developing products from plant-based raw materials such as corn, wheat, potatoes and peas. The group operates in over 100 countries, has a turnover of around 3.2 billion euros and employs more than 8,000 people worldwide.

Qualified experts

These contributors are selected for their top-notch expertise in DigestScience fields of activities.

- **Jacques Bernard**. Former vice-president of AFA, Representative of "Alliance Maladies Rares" (Alliance for Rare Diseases) and President of "Maladies Rares Infos Services" (Rare Diseases info Service).
- **Pascal Boulanger**. Chairman of the Pascal Boulanger group, President of Club Gagnants from 2006 to 2016. A man with a network, with a Masters degree in Law, he embarked in real estate at a very young age and quickly became an estate administrator. He then became involved in the cleaning industry and housing development. Diversifying the skills of the group he created, he expanded his business to green spaces, insurance and human services. Being a man of challenge, he jumped into the adventure of owning a star restaurant without any hesitation.

- **Philippe Clauw.** Communications professional for over 30 years, 15 of which as the director of a School of Communication (EFAP), creator of a regional information magazine, former administrator of the press club and correspondent for la "Voix des Sports" for almost 10 years. Very interested by the medical sector and research. He is involved, among other things , in expanding the influence of DigestScience.
- **Antoine Cortot.** University Professor and Hospital Practitioner (PU – PH) in hepato-gastroenterology at Lille Faculty of medicine/University hospital since 1981, former head of the Digestive and Nutrition Diseases department. Throughout his career, he has moved between providing care to patients with digestive tract disorders (most particularly Crohn's disease and ulcerative colitis), teaching digestive pathology and conducting research on intestinal inflammation. Currently a research consultant for Lille University Hospital Centre (CHRU).
- **Stephane Nancey.** Gastroenterology professor at Claude Bernard Lyon 1 University and Head of hepato-gastroenterology at Lyon University Hospital. He provides care to patients with Crohn's disease and ulcerative colitis, and conducts research with the Inserm U1111 team "Mucosal Immunity, Vaccination, Biotherapies" at the International Centre for Infectious Disease Research (CIRI), Lyon. Member of the European Crohn's and Colitis Organisation, member of the GETAID (Group for therapeutic products in Digestive Inflammatory Diseases) scientific committee, and founder and member of the scientific committee of REMIND (research group on digestive inflammatory diseases).
- **Jean Reveillon.** Journalist, manager of various medias (La Voix du Nord, France Télévisions, Eurovision) and now a singer/songwriter, he is also very committed to cycling, including in the colours of DigestScience.

■ Institutional Partners

- Lille University Hospital Centre (CHRU)
- French National Institute of Health and Medical Research (INSERM)
- Lille 2 University of Health and Law

These public research and education organisations are represented by natural persons.

■ Government commissioner

A government commissioner, designated by the Interior Minister after consulting the Minister of Research, attends the Board meetings in an advisory capacity. He ensures that activities comply with the articles of association and the public utility nature of the foundation. The prefect of region Hauts-de-France is the current government commissioner.

■ International Scientific Committee

This committee consisting of 6 members assists the Board of Directors regarding the scientific orientations of DigestScience. It includes internationally recognised scientists and clinicians with various areas of expertise.

- **Jean-Frédéric Colombel, MD, PhD.** Gastroenterologist, former head of the digestive diseases and nutrition department at the Huriez hospital, Lille (France). Current director of the Center for Inflammatory Bowel Diseases, Gastroenterology Department of Icahn school of medicine at Mount Sinai, New York. Member of the learned society IOIBD (International Organization of Inflammatory Bowel Disease) since 2009. Scientific advisor for the «Immunology, Microbiology and Inflammatory Bowel Disease» (IMIBD) section of the AGA (American Gastroenterological Association) since 2006. He has been president of several learned societies, including ECCO and GETAID.
- **Giovanni Barbara, Md, PhD.** Gastroenterologist, leader of a Research Unit at Bologna University (Italy). Particularly active in biomolecular and therapeutic research and the social aspect of functional gastrointestinal disorders.
- **Laurent Beaugerie, MD, PhD.** Professor of gastroenterology at Saint-Antoine hospital, Pierre et Marie Curie University, Paris 6, vice president of the AFA scientific council, member of the American Gastroenterological Association (AGA), and one of the two national representatives for France in the European Crohn and Colitis Organization (ECCO).
- **Julian Panes, MD, PhD.** Head of the gastroenterology department at Barcelona hospital and professor of medicine at Barcelona University, joined the scientific committee of DigestScience. His research team works on the identification of new molecular targets for the treatment of inflammatory bowel diseases, the development of cell therapies and the implementation of new diagnostic tools, with a particular focus on cross-sectional imaging.
- **Simon Travis, MD.** Consultant Gastroenterologist at the Translational Gastroenterology Unit, John Radcliffe Hospital, Oxford. He was President of the European Crohn's and Colitis Organisation 2012-2014. (ECCO).
- **Séverine Vermeire, MD, PhD.** Professor at Louvain University in Belgium, Séverine Vermeire is an expert of functional genomics in IBD. President of the European Crohn's and Colitis Organisation (ECCO) scientific committee.

Missions

The missions of the foundation all aim at improving the care and quality of life of patients with digestive diseases. They focus on four major areas: promoting and funding research, training care providers, supporting patients and raising awareness of these taboo diseases.

RESEARCH FUNDING

DigestScience supports research programs defined by an international scientific committee, that could provide direct and quick benefit to patients.

DigestScience's research strategy is based on ambitious programs that give selected teams the appropriate means to conduct their studies. The funding offered by DigestScience is among the highest at a European level for these types of diseases.

Their primary objective: discovering new therapies.



PATIENT SUPPORT

DigestScience introduced exemplary programs for the therapeutic education of patients with chronic Inflammatory Bowel Diseases (IBD) in northern France. As part of these programs, patients can attend specific workshops to help them better follow and accept their treatments, take control of their health and stay hopeful.



6



CARE PROVIDERS TRAINING

The little known and often taboo chronic digestive diseases, such as Crohn's disease and ulcerative colitis (UC) require very specific long-term care.

In order to address the many requests from health professionals who treat patients with digestive diseases, DigestScience finances and coordinates training courses and clinical workshops to help care providers better manager their patients and provide the most appropriate care. These training courses are also open to students.



AWARENESS AND ACKNOWLEDGEMENT OF THE DISEASES

Digestive diseases are still not well-known to the public. The mission of DigestScience is to increase awareness and acknowledgement of these conditions, raise funds for research, help patients get over their worries, rebuild social connections, start or get back to exercising...

Every year, the foundation organises several events to this end. Another way to get involved, communicate positively and take on challenges!

By catalysing new projects and bringing together energies, DigestScience now gathers a lot of supports, all committed to advancing research and fighting the disease.

PARTNERS

Research organisations, patient associations, local authorities, media: DigestScience develops within an increasing network of public and private partners.

- Association François Aupetit (AFA)
- AFDIAG (French Association of Gluten Intolerance)
- Lille University Hospital Centre
- Département du Nord
- Eco 121
- France Télévisions
- Grand Lille TV
- « La Voix du Nord » group
- INSERM (French National Institute of Health and Medical Research)
- Métropole Européenne de Lille (MEL)
- French Ministry of Higher Education and Research
- Radio Métropolys
- Region Hauts-de-France
- Téléstar
- Lille 2 University of Health and Law
- The cities of Armentières, Lambersart, Marcq en Baroeul and Roubaix
- Wéo

SPONSORS

Actively raising funds for medical research, DigestScience now has many sponsors who contribute to the development of the foundation.

- Abbvie
- AEI
- AG2R La Mondiale
- Amical LEP Auchel
- Amival
- Artech Graphique
- Avenir Cycliste
- Axis Experts Conseils
- Bastide Groupe
- Batixis
- Big Ring
- Bike Energy
- Bully section Jogging
- By Jo Way
- Caisse d'Epargne Nord France Europe
- CCIM club cycliste Isbergues
- CIC Nord Ouest
- Club 41 Lambersart
- Club Gagnants
- Cofidis
- Comité dept FFC PDC
- Crédit du Nord
- Crédit Mutuel Nord Europe
- Danone
- Ferring International
- Fidal
- Fondation Anber
- Fondation de France
- Fondation SNCF
- France Attelage
- Hyper U
- IBD
- IN&DI
- Janssen
- Jeunesse Cappelloise Athletisme
- KPMG
- Laurence Ossature Bois
- Lebrun Traiteur
- Les amis de Lille-Hardelot
- Les Amis de Pont Gibus
- Lesaffre Cie
- Lesaffre International
- Lil Co
- Lille VTT
- Lions Club de Carvin
- LVMH
- Mayoly
- Merck
- Mercure Investissement
- Octapharma
- PHI 62
- PPM
- Rex Rotary
- Roquette Frères
- SARL Electricité Fermetures Ferquaises
- SARL JOVEPEC Carrefour Contact
- SARL Mobisanté
- SARL Sanso
- SAS SIGLA NEUF
- SELARL Pharmacien Officine Aline Gillet
- Shimano
- Specialized
- Tacquet Industries
- Takeda
- Theradiag
- TSJC
- Union Cyclotouriste Houplinoise
- Union des praticiens de la clinique Bon secours
- Union Sport Coudekerquoise
- Urbim
- Vauban Humanis
- Vilogia

Overall budget
invested since the
foundation was
created:

€3 million

Founded by scientists and clinicians, DigestScience primary objective is to guide and finance new lines of basic, translational and clinical research .

Priority is given to innovative programs, demonstrating promising preliminary results that could lead to improved diagnosis, therapies or prevention within a 5-year period.

DigestScience primarily supports early-stage research and favours projects that are likely to raise additional funds.

Its research panel is among the most advanced in Europe for Crohn's disease, ulcerative colitis, gluten intolerance (celiac disease) and irritable bowel syndrome.



FIBROSIS: A MAJOR FOCUS OF RESEARCH

€400,000
invested

Intestinal fibrosis is a frequent complication of chronic Inflammatory Bowel Disease (IBD) that may lead to bowel obstruction and necessitate surgery, severely impacting the patient's quality of life.

Two research programs funded by DigestScience seek to develop new therapies for this complication.

Human polyvalent immunoglobulins against fibrosis

The immune system plays a key role in the development of fibrosis. Among the molecules that may target and modulate the immune system, human polyvalent immunoglobulins have the advantage of being well tolerated by the body, particularly in terms of infections, unlike other immunosuppressive therapies.

This research program examines the potential effect of these immunoglobulins in regulating the immune system and the fibrosis development process. The action of immunoglobulins is being studied for cure, but also for prevention, before fibrosis occurs.

Researchers hope to demonstrate the anti-fibrosing effect of polyvalent immunoglobulins and clarify the role of immune system modulation. Their objective is to develop an innovative, effective treatment for fibrosing complications of inflammatory diseases.

The program is led by David Launey, MD, PhD from the Clinical Immunology, Internal Medicine department, Lille University Hospital. The National Reference Center for rare systemic and auto-immune diseases, Lille Inflammation Research International Center (LIRIC),

Inserm UMR 995 and Lille University are also involved in this program.

Microbiome and Intestinal Fibrosis: explaining the Role of Bacteria

In healthy individuals, gut bacteria exist in harmony. In patients with IBD, they can activate an immune response, leading, sooner or later, to the formation of fibrosis.

The purpose of this program is to understand precisely the mechanisms of fibrosis development in the intestine, involving bacteria and mesenchymal cells, the main causes for the formation of scar tissue in the intestine. This work is performed both on human cells collected from patients with IBD and healthy patients, and on an experimental animal model resulting from the latest advances in biotechnology.

The program paves the way for new therapeutic options that, through action on gut flora and bacteria, will help control or treat fibrosis development.

It received the first research grant co-awarded by the European Crohn and Colitis Organisation (ECCO) and the DigestScience foundation. It was conducted by Florian Rieder under the leadership of Claudio Fiocchi at the Digestive Disease Institute in Cleveland, USA.

The advances and extent of the research works studying fibrosis show the ambition of our actions to improve patient care.



SELF-HYPNOSIS AND SURGERY IN CROHN'S DISEASE

€13,500
invested

Surgery is used for the treatment of IBDs when therapy failed or complications occurred. Surgery for IBD removes the parts of the bowel which are the most damaged by the disease.

Despite surgical advances, postoperative pain remains a significant problem, exacerbated by the disease-related inflammatory symptoms.

The purpose of this program is to investigate, for the first time, the benefits of self-hypnosis in improving the quality of life of Crohn's disease patients following a surgical procedure.

Self-hypnosis is a technique based on relaxation, in which a hypnotic trance is induced by the patients themselves to reduce anxiety and pain, before and after the procedure.

The study will include 68 patients with Crohn's disease who need a laparoscopic ileocecal resection. These patients will be randomised in 2 groups, with and without pre-surgery hypnosis.

The primary objective is to demonstrate that postoperative use of morphine is reduced. Other criteria will also be studied, including the duration of hospital stay or the recovery of bowel movements.

The research program is led by Philippe Zerbib, MD, PhD from the Digestive Surgery and Transplant department, Lille University Hospital, and his team.

Electron microscopic view of bacteriophages attached to a bacterium

BACTERIOPHAGES AND INTESTINAL FLORA

€400,000
invested

This project, a result of DigestScience second call for projects, was conducted by three internationally renowned French teams : the Pasteur

Institute in Paris, Lille University and Clermont Ferrand University. Its purpose is to use specific bacteriophages for the treatment of Crohn's disease – a very innovative and very promising therapeutic approach.

Bacteriophages are viruses that only infect very specific bacteria. The program aims at identifying bacteriophages targeting strains that are specific to Crohn's disease and exacerbate the inflammatory response: AIEC (Adherent Invasive Escherichia Coli).

Started in 2010, these DigestScience-funded research works led in 2016 to the initiation of the first international clinical trial of this therapy, co-sponsored by Ferring Pharmaceuticals, a pharmaceutical company specialised in IBDs, and Intralytix, a biotechnology company leader in producing bacteriophages.





EPIMAD - WORLD'S LARGEST EPIDEMIOLOGICAL REGISTRY ON CROHN'S DISEASE AND ULCERATIVE COLITIS

€76,000
invested

Supported by the DigestScience foundation since 2008, EPIMAD is an exceptional clinical research tool under the scientific leadership of Corinne Gower-

Rousseau, MD, PhD.

Started almost 30 years ago and including 6 million people, i.e. almost 10% of the French population, this epidemiological program lists 27,000 cases of Crohn's disease and ulcerative colitis. It identifies all the new cases.

EPIMAD follows the evolution of these diseases over time and space, including in specific populations such as children or the elderly. This unique tool helped reveal a significant increase in the incidence of the disease in young people over the last 20 years, and determine its endemic areas.

It gives better understanding of the diseases through the study of family forms, twin conjugal forms, genetic profiles, the metagenomic profile of gut microbiota, serological profiles, etc

Epidemiology is a key research area to understand the origins of Crohn's disease. With Epimad, DigestScience is the European leading scientific contributor in this field.

STEM CELLS: A MAJOR HOPE FOR THE CURE OF CROHN'S DISEASE

€600,000
invested

Resulting from the foundation's first call for projects and supported by the University of Leiden, Netherlands, this program marks a break with current treatment approaches (monoclonal antibodies, molecules) and gives great hope for a cure.

The research works investigate the use of mesenchymal stem/stromal cells (MSCs) for the treatment of Inflammatory Bowel Diseases. These cells are known for their healing effect on human tissues and their ability to inhibit immune responses and inflammatory symptoms.

This work may also benefit to patients with other auto-immune diseases: type 1 diabetes, lupus, multiple sclerosis, Parkinson's disease, Alzheimer, rheumatoid arthritis or cardiovascular diseases.

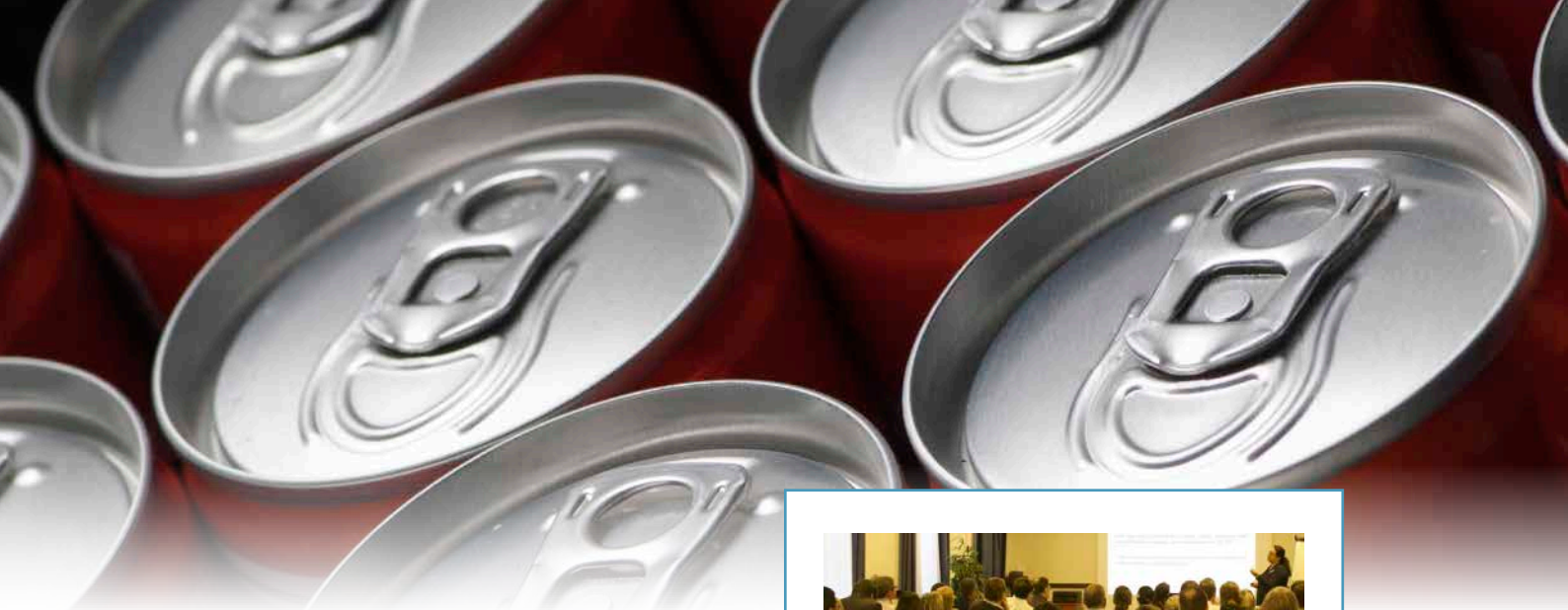
Following very conclusive first results, this program generated more advanced clinical studies, resulting in major scientific publications...

KIDNEY AGING ACCELERATED BY DIETARY GLYCATION

€96,000
invested

Kidney is an organ that is very sensitive to ageing. There is a 40% decrease of the kidney function between 30 and 80 years old, affecting two thirds of the general population. Common cardiovascular risk factors (diabetes, high blood pressure, smoking...) are known to accelerate kidney ageing. The last stage of kidney failure requires kidney transplant or dialysis, associated with huge social and human costs: €50,000 to €82,000 per patient per year.

Glycation is the spontaneous chemical bonding of a sugar molecule to a protein. Eric Boulanger, MD, PhD, and his team at LIRIC Inserm 995 came up with the hypothesis that this reaction, increased when foods are cooked (formation of Advanced Glycation End-products or AGE), accelerates renal ageing, in particular through their cellular receptor RAGE (Receptor for AGEs). The team has already demonstrated that dietary AGEs accelerate arterial ageing in mice (hypertension). In addition to renal ageing, AGEs could also be involved in the ageing of other vascular target organs such as the brain or the heart.



ALUMINIUM AND INTESTINAL INFLAMMATION

€18,000
invested

Aluminium is the main metal accumulated in our environment. This program, partly funded by DigestScience, shows that it may be a risk factor for

Crohn's disease and ulcerative colitis.

A first scientific study has shown that daily aluminium exposure, at concentrations found in the environment of industrialised countries, increases the severity and duration of gut inflammation in mice. Several mechanisms are involved: aluminium increases the inflammatory response, weakens the digestive tract, making it more susceptible to bacteria, and prevents scarring. This study was conducted in animals by Guillaume Pineton de Chambrun, MD, PhD at the Inserm U9951 research unit.

New epidemiological and environmental studies are being performed to determine the influence of aluminium exposure in patients with IBDs.

Other works show that aluminium increases the sensitivity to visceral pain and can damage and cross the digestive epithelial barrier.

A worldwide preview of these works was presented at the 2015 Keele Meeting organised by the DigestScience foundation.



DIGESTIVE DISORDERS AND ALUMINIUM: DIGESTSCIENCE ORGANISES THE KEELE MEETING IN LILLE

DigestScience, in partnership with Keele University and Lille University, hosted the eleventh edition of the Keele Meeting entitled "The Natural History of Aluminium, past, present, future" from February 28 to March 4, 2015.

This world-renowned meeting is the largest scientific event dedicated to aluminium and its impact on health.

The 11th edition of the meeting brought together almost 100 international researchers to present 65 of the most advanced scientific works on the topic.

The results of research activities conducted by the Inserm U995 unit in Lille, and co-funded by DigestScience, were some of the highlights of the conference. These results demonstrate for the first time in an animal model the effects of aluminium on the severity and duration of intestinal inflammation, its impact on the sensitivity to visceral pain and its ability to damage and cross the epithelial barrier.

A PARASITIC ENZYME AS A NEW THERAPEUTIC TOOL FOR IBDs

P28GST is an enzyme with antioxidant and anti-inflammatory properties. In 2010, researchers from the U9995 team in Lille (Monique Capron, PharmD, PhD and Jean-Frédéric Colombel, MD) thought of studying its anti-inflammatory role in animal models used for investigating intestinal inflammation. The results, reported in several international publications and presentations, show that P28GST is capable of very significantly decreasing the markers of inflammation.

The knowledge gained on P28GST, including its mode of action and the absence of any toxicity, led to the initiation of a clinical protocol, ACROHNEM, to study the tolerability of and response to P28GST treatment in patients with Crohn's disease.

DigestScience provides logistical assistance to support the works of Monique Capron, with a view to using this original molecule to develop a new therapeutic approach for IBDs.

IBDS AND MICROBES: THE ROLE OF AIEC

€86,000
invested

Imbalance of the microbial and bacterial flora in the gut is currently considered a key factor in the onset of Crohn's disease.

The microbes currently attracting the most researchers' attention are *Escherichia coli*, and most particularly a specific group called Adherent-Invasive *Escherichia Coli* (AIEC) that is involved in Crohn's disease and very likely in ulcerative colitis.

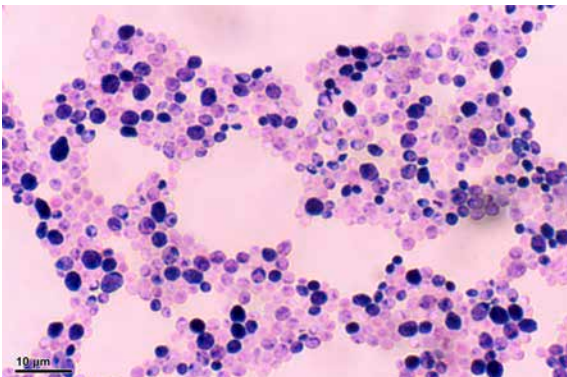
Strong adhesion to and invasion of the intestinal epithelial cells by these microbes lead to inflammatory symptoms. These microbes also seem to play a part in the development of microscopic lesions characteristic of the disease.

DigestScience made significant investments in this research area with two research programs.

The first one aims at better understanding the role of the AIEC strain in Crohn's disease by studying the natural reservoir and development of these microbes in the various intestinal segments (ileum, colon, rectum). Another objective is to track the progression of this bacterial colonisation according to the severity of Crohn's disease and after surgical treatment.

The second study funded by DigestScience extends these investigations to ulcerative colitis. The objective is to assess the prevalence and quantity of AIEC in patients and to track their progression under anti-TNF treatment.

Candida Albicans (microscopic view)



THE ROLE OF CANDIDA ALBICANS IN CROHN'S DISEASE

€2,500
invested

DigestScience gave financial support for part of this prospective clinical study examining the involvement of a very common yeast in Crohn's disease: *Candida Albicans*.

The biological materials collected as part of the study (mycological and serological tests) and the analysis of the comparative data of patients treated for more than 6 months vs. the control group will generate valuable data for further studies.

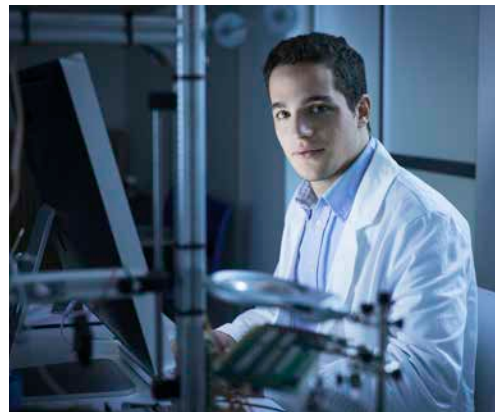
INNOVATIVE RESEARCH PLATFORM TO EXAMINE THE ENVIRONMENT-DIGESTIVE TRACT RELATIONSHIP

€10,000
invested

Caenorhabditis elegans is a small transparent worm, approximately 1 millimetre long, with a highly developed digestive system. Easy to grow, this worm has 959 well-identified cells and share many genomic similarities with humans.

Being transparent, with a basic anatomy, this worm is one of the best model organism for research on the digestive system, including genomics.

In 2015, DigestScience funded the implementation of a research platform entirely dedicated to this organism. It now allows to conduct environmental studies on thousands of worms, most particularly to explore the impact of dietary factors on ageing.



DIGESTSCIENCE LABEL IN SCIENTIFIC PUBLICATIONS: PROMOTING THE EXCELLENCE OF LILLE RESEARCH

€20,000
invested

Created in 2016, the DigestScience label rewards the most internationally innovative and promising publications on digestive diseases issued by research teams located in Lille.

For the researchers, the label means they receive direct financial support for their research, such as equipment purchase, congress costs contributions, etc.

20 scientific publications were awarded this label in 2015 and 2016.

The DigestScience foundation battles against a group of little known digestive diseases, for which medicine is so far powerless, whether in scientific, diagnostic or therapeutic terms. It offers health care providers (doctors, nurses, physiotherapists, dieticians, etc.) expertise and training programs to help improve patient care.

MULTIDISCIPLINARY CONSULTATIONS

Care services for people with ulcerative colitis or Crohn's disease are very specific and should be tailored to each patient, based on their age, intestinal damage, life habits, response to treatments, etc.

The therapies and treatment regimens for these diseases are continuously evolving, with many molecules being tested, particularly to target intestinal immunity.

Every month since 2005, DigestScience has been gathering the best IBD experts during multidisciplinary consultations and all health professionals are invited to share their questioning, clinical cases and treatment choices.

Our experts make the latest scientific advances available to them and give them access to new therapeutic molecules and the latest clinical trials: a real progress for patient care.

Organised in Lille and its region (Hauts de France), these consultations initiate a direct dialogue between private doctors and hospital clinical practice. They give concrete suggestions to address the sometimes difficult situations experienced by health professionals with their IBD or celiac disease patients. They also help standardise care practices.

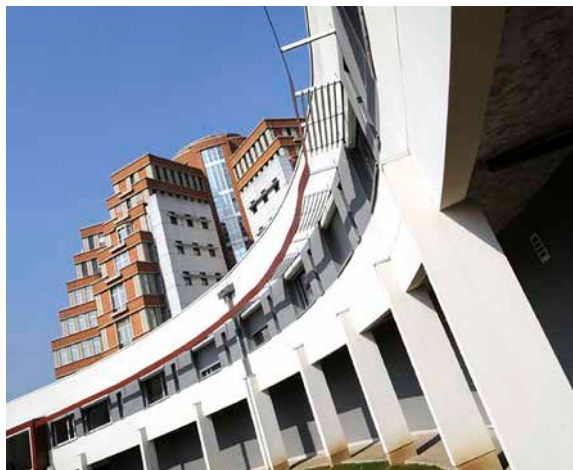
Over 2,000 patients have benefited from this multidisciplinary expertise since 2005.



ONGOING CLINICAL TRIALS

DigestScience provides all gastroenterologists from region Hauts-de-France with detailed information about the treatment protocols used in Lille University Hospital. Such information improves access to the latest treatment innovations for the patients, including in clinical studies.

Over the years 2015 and 2016, Lille University Hospital conducted 62 treatment protocols.



CHRU de Lille

**Over
2,000**
patients have
benefitted
from this
multidisciplinary
expertise since
2005



Care Providers Training



The consultations organised by DigestScience are essential to share our questioning about the most complex IBD cases.

Arnaud Boruchowicz, MD

Hospital Gastroenterologist,
Valenciennes Hospital Centre

15

NUTRITION AND AGEING SEMINAR

DigestScience scientific committee is convinced that nutrition can provide many new treatment opportunities and should be given greater consideration by health professionals when developing treatment plans.

The foundation has been supporting since 2014 a training module of the Master "Biology of Ageing" offered available at Paris 5, Paris 7, Versailles, Toulouse and Lille 2 Universities.

This module is open to students from various national and international fields (biology, medicine, pharmacy, etc.). It addresses many aspects of nutrition as a therapeutic weapon against ageing :

- Age-related nutritional adaptations
- Nutrition and cognitive ageing
- Neuroendocrinology of nutrition and ageing
- Nutrient metabolism and ageing of the tissues
- Nutrition and target organs

The module is structured as a scientific meeting, a richer, more interactive format than standard lectures. It is conducted by university professors and R&D managers from agri-food companies.

In 2015, it took place from November 23 to November 27, and from November 14 to 18 in 2016.



FOCUS ON INFLIXIMAB BIOSIMILARS - 21 JUNE 2016

New data, recommendations, optimisation, interchangeability, dosing: on June 21, 2016, the foundation held a high-level seminar on the use of biosimilar medicines for gastroenterologists.



16

Together with Association François Aupetit (AFA) for IBDs and the French Association of Gluten Intolerance (AFDIAG) for celiac disease, DigestScience is active in multiple areas of therapeutic education, patient information and patient support. Our action aims at providing them with all necessary resources to take full control of their treatment strategy.



Centre Hospitalier Régional
Universitaire de Lille

DIGESTSCIENCE, LEADING FINANCIAL PARTNER OF THERAPEUTIC EDUCATION IN IBDS

Thanks to private partnerships, DigestScience pioneered a patient therapeutic education (PTE) program for patients with IBDs.

Started in 2008 at Lille University Hospital Centre, the initiative outstripped the French HPST (Hospital, Patients Health and Territory) 2009 Law and rapidly met with success. Approved by the regional health authority in June 2011, it is regularly evaluated. For 4 years, it was entirely funded by DigestScience.

The purpose is to help patients understand their disease, organise their daily life, improve their quality of life and fully benefit from the various cares and treatments (adherence to treatment, side effects, surgery, etc).

During individual and group sessions, each and every patients is followed by a full team coordinated by a specialised nurse: social worker, tobaccologist, dietician, psychologist, stoma therapist, patient association and art therapist.



PATIENT INFORMATION

Through workshops and conferences, with topics ranging from nutrition for gluten intolerant people to managing the growth of children with IBD, DigestScience is involved in providing the patients and their families with many opportunities to be informed, share and testify.

DigestScience also participates in the development of information tools intended to the general public and the patients: disease and treatments information sheets, IBD patient diary, etc.



17

Crohn's disease makes everyday life difficult, but if you set goals, you can live!

Betty Vandromme



ART THERAPY AND DIGESTIVE DISEASES - A FRENCH PREMIERE

Art therapy uses an individual's artistic expression and creativity potential for therapeutic purposes. Art complements standard care to rebuild communication, develop expression abilities, and boost the creative process of people with vulnerabilities and physical or psychological difficulties. Art therapy is now used in cancer care with a positive and tangible impact on fatigue, anxiety, quality of sleep, pain, and the relationship between patients and caregivers, etc.

In 2016, DigestScience launched the first French art therapy program for digestive diseases.

Objective: To stimulate the creative impulse of patients and give them new tools to better manage their condition.

Besides an obvious scientific mission and actions towards health professionals and patients, the DigestScience foundation also organises events for the general public, sporting events mostly, to raise funds, but also to improve awareness and acknowledgment of these diseases that are too little talked about, probably because bowel problems are not very media friendly!

These events rally public authorities, companies and patients around a good cause. The foundation also ensures that each event is self-financed with the support from sponsors, benefactors and volunteers, so that all profits go to its missions.



Two types of events promote the foundation:

1. Events directly organised by DigestScience, such as "Testathlon", "Cycling Night", "The Team" and "Les p'tits ambassadeurs"
2. Events organised by natural or legal persons external to the foundation, specifically created to benefit the foundation: DigestScience is the "charity" of these operations!

18

OPERATIONS FOR THE BENEFIT OF DIGESTSCIENCE IN 2015 ET 2016

- "Shimano" mechanical workshops on major events
- "Hommage à Benjamin Morieux", cycling race for young people in Allouagne, France
- De Santes à Lourdes (cycling challenge)
- En route pour Rio (sailing)
- French Divide (cycling challenge)
- Gentlemen cyclo, Coudekerque-Branche
- Global drawing (bike trip around the world)
- Grand prix cycliste d'Isbergues
- "Open Day" in Maria Goretti high school (Lambersart)
- La dure des dures (bike ride)
- Les foulées cappelloises
- Lille-Hardelot (bike ride)
- LOSC-OM 2015 (young patients invited to the football game)
- Rando des as
- Rando du cyclo club houplinois
- Salon de la Flandre et de la nature, Coudekerque-Branche
- Trail des tranchées
- Transcontinentale Londres-Istanbul
- Ultra-trail du Morbihan

DIGESTSCIENCE TEAM

The everyday lives of patients with digestive disease is very similar to those of top-level athletes who need to continuously improve their physical fitness, work on their mindset, trust themselves, be well accompanied, be brave and persistent, find joy in hard work... These values are all found in cycling, this is why DigestScience is the only research foundation that set up an informal group of over 500 sportspersons who participate in major amateur cycling events whenever available.

"The Team" is not like any other team. It's all about conviviality, not competition. To be part of it, you must give of your time without expecting anything in return, understand that the winner is not always the one you think, wear your pink jersey proudly, reach out to meet other people and respect the group's diversity, keep in mind that patients who would love to be on the bike... and know at least a few things about digestive diseases!

The many rides of the Team have helped give the foundation very good visibility and have raised public awareness of digestive diseases.

Awareness and Acknowledgement of the Disease

“LES P’TITS AMBASSADEURS”

Created in 2014 by 3 boys who rode their bike across France to raise €1,500 for the foundation by sponsoring every mile, the operation expanded to ten young cyclists holding a license from the French cycling federation (FFC). Personally affected by or relatives of patients with digestive disease, they give their best to acknowledge their courage. With the kind permission of the organisers of the Tour de France (A.S.O.), these teenagers ride the last 50 kilometres of the Tour only a few hours before the World Class cyclists. They can be viewed by tens of thousands of people in person, on TV, on the Web or in the press – an exceptional media coverage for the foundation!



TESTATHLON

Created in 2006 by the Intestinfo association, forerunner of DigestScience, Testathlon was initially a family rural triathlon that went from 200 to 2,000 participants in 10 years. Over the same period of time, it raised over €115,000 for research on digestive diseases.

Bringing together experienced and amateur sports-persons, individuals, families, corporate or association teams, healthy people and people with disease, runners and cyclists in a park in Northern France, it has been including a “free form” since 2016 so that every competitor can choose to take part in all or part of the events, the important thing being to show solidarity with patients and medical research through participation.

Extremely popular and federative among our founders’ and partners’ team members, Testathlon is a simple and effective way to support our action.



CYCLING NIGHT

Started in 2013 by the “Club Gagnants”, this great night event quickly became a renowned part of the “Paris-Roubaix” special week-end in Roubaix. This festive sporting event also helps outpace the disease!

Over the years, it gained momentum to draw attention on the foundation and increase its visibility. To do so, it welcomed media personalities such as Thierry Adam, Alain Bondue, Camille Cerf, Gilbert Duclos-Lasalle, Murray Head, Bernard Hinault, Gérard Holtz, Laurent Jalabert, Gérald Kierzek, François Pervis, Kevin Sireau, Bernard Thévenet, Arnaud Tournant...

In 2017, it becomes the “DigestScience Night”, with a view to mobilise as many people as possible around a research program to identify the environmental causes of Crohn’s disease.



Created by doctors and researchers in 2008, DigestScience is the only public utility foundation in France (and the first in Europe) dedicated to digestive diseases and nutrition.

Digestive diseases, whatever their type, are all incapacitating and difficult to manage, especially as they increasingly affect younger patients!

The purpose of the DigestScience foundation is clearly to develop the capability to discover new treatment options and give (back) hope to patients.



DONATE TO SUPPORT MEDICAL RESEARCH

The international research programs supported by DigestScience are financed with donations that are directly allocated to innovative and necessary scientific programs.

Make a contribution to accelerate medical research on digestive disorders.

The foundation being considered of public utility, each contribution entitles individuals and companies to significant tax benefits.



DigestScience

Digestive tract diseases and nutrition
research Foundation

8 rue Jean Walter 59000 Lille, France
Phone: +33 (0)3 20 96 81 26
contact@digestscience.com



www.digestscience.com