



Editorial

Dear readers,

The year 2024 marked another important step in the ongoing transformation of our institution, driven by a clear mission: serving public health in Luxembourg with excellence, innovation, and dedication.

Building on the foundations laid in 2023, we further strengthened our internal processes and organizational structure, with a continued focus on efficiency and quality.

Our digitalization efforts translated into tangible progress, from the automation of key equipment to a comprehensive review of our digital tools. These changes share a common goal: to continuously improve the services we provide and to better meet the needs of our healthcare partners and patients.

None of these achievements would have been possible without the unwavering commitment of our teams. We extend our sincere thanks to all our colleagues for their tireless efforts and to our partners for their trust and collaboration.

Our journey continues toward a future-ready LNS—agile, innovative, and steadfast in its mission to serve a modern, accessible, and high-quality public health system.







Our journey in 2024

NATIONAL CENTER OF GENETICS

A technical audit was conducted for genotyping assays and hemoglobin diagnostics to ensure accuracy and enhance diagnostic capabilities

NATIONAL CENTER OF PATHOLOGY

The Department incorporated a fully automatic sectioning device. This innovation helps reduce the backlog of samples, alleviates ergonomic strain on technicians, and allows them to focus on specialized tissue types.

MICROBIOLOGY

To improve operational erficiency and service delivery, the Department initiated the formation of horizontal working groups. These groups focused on harmonizing services, strengthening quality management, integrating the Laboratory Information Management Systems (LIMS) with other management tools, and advancing digitalization and automation.

MEDICAL BIOLOGY

The Department launched Phadia systems for total and specific IgE, and Tryptase testing. These activities are carried out as a lab-to-lab collaboration with the Centre Hospitalier de Luxembourg (CHL), whose activities were integrated into the department.

GOVERNANCE & PEOPLE

A new staff delegation was established, aiming to represent employees and contribute to the institution's

ry — Feb

ry —

March

Apri

NATIONAL CENTER OF PATHOLOGY

The first automatic microtome was inaugurated, significantly modernizing the Department's histopathological sectioning process.

NATIONAL CENTER OF PATHOLOGY

The Department was reorganized into five specialized pathology units. Each unit has a designated Head of Unit to improve standardization, enhance oversight and coordination, and foster innovation.

LEGAL MEDICINE

The Department celebrated its 10th anniversary and hosted the DGRM Conference.

GOVERNANCE & PEOPLE

The institution transitioned to electronic payslips, streamlining administrative processes and reducing paper usage.

MICROBIOLOGY

The Department undertook a comprehensive reevaluation of its equipment and initiatives. This effort focused on resource sharing, synergistic use, and donations to create space for teamwork and enhance interservice collaboration.

May -

June

Mass spectrometry for steroids and catecholamines was launched, replacing radioimmunoassays and HPLC, and improving analytical performance.

MEDICAL BIOLOGY

MICROBIOLOGY

Designated as the National Influenza Center by the World Health Organization (WHO), the Department prepared to participate in the meeting for new directors in Geneva. The department has focused on upgrading testing methods, enhancing report visualization, and strengthening national and international collaboration.

COMMUNICATION & PUBLIC IMAGE

The institution launched its official Instagram account to enhance its digital presence.

NATIONAL CENTER OF PATHOLOGY

A workplace restructuring took place, including the reallocation and expansion of the sample reception and registration areas. The macroscopy laboratory was also expanded, reaching a capacity of 10 positions for the macroscopic study of biopsies and surgical specimens.

COMMUNICATION & PUBLIC IMAGE

The institution organized an Open Doors Day, welcoming the public to discover its activities and facilities.

August

Septembe







Our journey in 2024

IT

The complete migration of the building's telephony system was successfully completed, modernizing communications infrastructure.

MEDICAL BIOLOGY

The Department achieved accreditation in accordance with ISO 15189:2022, affirming its commitment to quality and competence in medical testing.

NATIONAL CENTER OF PATHOLOGY

Internal and external documentation for preanalytical processes was implemented as part of the department's efforts towards accreditation.

GOVERNANCE & PEOPLE

The LNS Activity Committee was officially launched to promote employee engagement through various initiatives.

QUALITY/NATIONAL

The LNS was named a finalist for the Luxembourg Quality and Excellence Award in recognition of its continuous improvement efforts, supported by its VELONA software.

MEDICAL BIOLOGY

The Health Directorate requested the extension of the newborn screening program to include 13 new diseases in 2025 and 2026.

HEALTH PROTECTION

The Department underwent ar external OLAS audit and achieved accreditation at the departmental level and in two international standards (ISO references).

GOVERNANCE & PEOPLE

The LNS whistleblowing platform was launched, providing a secure and confidential channel for reporting concerns.

MICROBIOLOGY

The Department received commendatory feedback during the PHEPA evaluation conducted by the ECDC, particularly in relation to laboratory preparedness and canacity.

Decembe

STOCK MANAGEMENT

January to December

Centralisation & Harmonisation of the stock management





Health Protection

The Health Protection Department supports public health and health care for problems caused or aggravated by the environment, including indoor pollution, the working context, consumer products and food. We fulfill this mission through servicing including expert advice, education and applied research. Our main stakeholders are the ministries, the hospitals and the services for occupational medicine in Luxembourg.

Key figures 2024

5,535 Samples collected in the field (air, dust, blood, urine) **119,308** Toxin Analyses (air, dust, blood, urine) **515** Risk and health impact assessments



Topic highlighted in the Department's video:

"Department-wide accreditation according to two international standards: ISO/IEC 17025 and ISO 15189

Meet our Team:

Blanche Casanova, Quality Referent, Environmental Hygiene and Human Biological Monitoring

"Committed to quality, I am proud to have contributed to the evolution of the existing quality system in order to standardize practices and ensure the essential skills for the developed techniques. All this with the aim of evaluating environmental risks to protect our health."

Lauralie Mangeot-Peter, PhD, Technical Officer and Quality Coordinator, Medical Expertise and Data Intelligence

"Upon my arrival at the LNS in 2021, I had the opportunity to attend the first ISO/IEC 17025 accreditation audit of the EnvirOH laboratory. Three years later, the entire Department is accredited, thus encompassing the environmental sampling carried out in the field by the MEDI service. As Technical Officer and Quality Coordinator, I am proud to have actively contributed to this success."







Health Protection

Meet our Team:

Jean-Raymond Guillard, Nurse and Metrology Referent, Medical Expertise and Data Intelligence

"Integrating metrology into our field sampling service was a challenging yet rewarding task, combining rigor and adaptability. I played a key role in establishing reliable processes to ensure precise measurements despite the constraints of working in the field. This experience has further strengthened my expertise and commitment to quality."

Benjamin Arias Carnero, Laboratory Technician and Metrology Referent, Environmental Hygiene and Human **Biological Monitoring**

"The double accreditation required a lot of time and effort on my part to meet the various applicable standards. However, the success of this achievement is primarily based on rigorous preparation and the commitment of the entire team to maintain consistent quality, where the precision and reliability of results are crucial for our analyses"







Legal Medicine

The LNS Legal Medicine Department works mostly at the request of the Luxembourg judicial authorities, the police and other government bodies.

Its main activity areas are all aspects of forensic medicine, the genetic identification based on molecular biology methods, toxicological reports for autopsies and matters concerning living persons, the identification and testing of narcotic drugs and the control of drugs, food supplements or other products of unknown origin suspected of containing medicinal substances.

Key figures 2024

2,184 Samples analyzed by the forensic toxicology service in legal cases ("affaires judiciaires") **28** Low-threshold "umedo" examinations (Service médico-judiciaire)



3,112 Drug samples analyzed using HPLC/UV by the analytical chemistry service

Topic highlighted in the Department's video:

"Fire accelerant analysis"

Meet our team:

Dr. Martine Schaul, Forensic Pathologist

"We greatly appreciate that the highly relevant analysis for fire accelerants in death investigations involving fire victims is now being offered within the Department".

Nicolas Villani, Laboratory technician

"I am very proud to have contributed to the development of the laboratory for fire debris investigation at the LNS. This is a brand new field of study within our Legal Medicine Department - and a first in Luxembourg".





Medical Biology

The LNS Medical Biology Department offers a wide range of activities, including specialized biochemistry and hormone analysis, diagnosis of inborn errors of metabolism, and allergology. The Department is responsible for neonatal screening for Luxembourg and has developed the unique medical toxicology laboratory in the country. The LNS Medical Biology Department serves a diverse range of clients, including private laboratories, hospitals, as well as the general population encompassing occupational medicine, associations for drug addicts, correctional facilities, socio-educational centers, the military, and maternity clinics. Furthermore, the Department takes charge of the Centralised Samples Reception.

Key figures 2024

1,300 Different parameters

+32.2% Increase in activity within one year

87.2% Of analyses performed are accredited (by volume).



Topic highlighted in the Department's video:

"Newborn Screening Expands to SMA"

Meet our team:

Claudine Bruck, Océane Schlienger, Sandra Feyder and Frank Goetzinger, Laboratory Technicians

"This is the first time our Department is using a molecular biology technique. It allows us to grow, learn new methods, and it's very motivating to see our skills evolve in line with diagnostic needs."





Microbiology

The Department of Microbiology of the LNS provides high-quality diagnostic services, accredited by the Luxembourg Office of Accreditation Services (OLAS), in bacteriology including mycology, virology, and sequencing, with an increasing focus on a syndromic approach and surveillance.

Our fruitful contributions are supported by a multidisciplinary team, including epidemiologists, bioinformaticians, software developers, and data engineers. The Department is actively involved in national and European projects related to surveillance, preparedness, and the development of action plans addressing antimicrobial resistance (AMR), all aimed at enhancing public health responses to infectious diseases. Furthermore, enhanced automation and digitalization have become paramount in our efforts to improve diagnostic efficiency and accuracy, ensuring timely delivery and responsiveness in all our services.

Key figures 2024

5,292 Pathogen sequencings12,530 PCR analyses in virology55,585 Serology analyses43,458 Performed analysis



Topic highlighted in the Department's video:

"How the Department contributes to combat antimicrobial resistance (AMR)"

Meet our team:

Dr. Sc. Kirstin Khonyongwa, Epidemiologist and Dr. Sc. Sabrina Deroo, Scientific coordinator

"The Department of Microbiology is engaged in two EU co-funded projects: PANDOMIC (project 101112724) and JAMRAI (project 101127787) tackling antimicrobial resistance (AMR). The main objective of both projects is to improve One Health AMR Surveillance. Through these projects, we collaborate with international partners, exchange knowledge and expertise to strengthen AMR surveillance with national stakeholders."





National Center of Genetics

The National Center of Genetics (NCG) of the LNS covers all areas of human genetics, including clinical genetics, genetic counselling and an extensive spectrum of genetic diagnostics, from conventional karyotyping to modern next generation sequencing (NGS).

The NCG offers genetic consultations and diagnostics to individuals and their families, e.g. in the context of familial predisposition to cancer, rare hereditary diseases, or prenatal genetics and family planning. In addition, we are continuously establishing new techniques and expanding our diagnostic portfolio to ensure state-of-the-art patient care.

Key figures 20242,540 Genetic Consultations38,642 Genetic tests8,260 Non-invasive Prenatal Tests



Topic highlighted in the Department's video:

"Introduction to Non-Invasive Prenatal Testing (NIPT)"

Meet our team:

Marizela Kulisic, PhD, Clinical Laboratory Scientist, Dr. Abdelkader Heddar, MD, PhD, Geneticist and Thierry Streng, Laboratory Assistant

"What makes NIPT unique is its ability to screen for chromosomal anomalies with high sensitivity and specificity, using nothing more than a maternal blood sample. For us, it means bringing cutting-edge genomics into routine prenatal care—safely, early, and without risk for the pregnancy."







National Center of Pathology

The National Center of Pathology (NCP) offers the whole spectrum of cytological, histological and molecular diagnostics provided by a highly specialized team.

The Department is composed of two services: the Anatomical Pathology Service, in charge of histological analysis of biopsies, surgical specimens and the non-gynecological cytology and the Gynecological Cytology Service, responsible for the cervical cancer screening.

Key figures 2024

412,795 Analyses performed in the Anatomic Pathology Service **40** Tumor Boards attended per month 215,932 Analyses performed in the Cytology-Gynecology Service



Topic highlighted in the Department's video:

"Behind the scenes of the National Center of Pathology"

Meet our team:

Mijona Zelen, Quality Coordinator

"Quality in a diagnostic medical laboratory is not just a requirement —it is the foundation of trust in every result we deliver. My role is to build, apply, and improve quality systems that keep our work accurate, consistent, and safe. By making sure our daily work follows high standards, we help protect patients, support clinical decision-making, and reinforce the credibility of our laboratory."

Delphine Magard, Head of Operations

"Behind every diagnostic report, there are several processes that require compliance and accuracy. We need to ensure that every task is performed effectively and efficiently. As responsible of the Operations in Anatomic Pathology, my role comprises daily monitoring, strategy development and continuous improvement activities that help to maintain a safe working environment while processes meet technical and quality requirements."







LNS Governance

GOVERNANCE BODIES

The LNS is a public institution managed by the Board of Directors. The management of the laboratory is entrusted to a Director assisted by the executive committee and a scientific advisory board.

BOARD OF DIRECTORS

The Board of Directors is the managing body of the LNS. It defines the general policy, organization and functioning of the laboratory in compliance with applicable laws, regulations and conventions.

Members as at 31 December 2024

Delegates from the Ministry of Health and Social Security

Dr Jean-Claude Schmit, vice-president

Dr Thérèse Staub

Mr Xavier Poos

Dr Marc Schlesser

Ms Lucienne Thommes

Mr. Tom Rausch

Delegates from the Ministry of Justice

M. Laurent Thyes

M. Georges Oswald

Delegate of the Ministry of Higher Education and Research

Ms Stéphanie Schott

Delegate of the Ministry of Economy

Dr Françoise Liners

Delegate of the Ministry of Finance

Mr Serge Hoffmann

Delegate from the the Ministry of Agriculture, Food and Viticulture

Mr Patrick Hau

Government-appointed Commissioner for Hospitals:

Mr Jean-Paul Freichel, observer

LNS staff representative

Ms Jessica Tapp







LNS Governance

EXECUTIVE COMMITTEE

The executive committee, composed of the Heads of the Departments, the Heads of the Diagnostic centers, the Director, the Chief Financial and Administrative Officer and the Chief Operating Officer, meets at regular intervals to coordinate the activity of the institution.

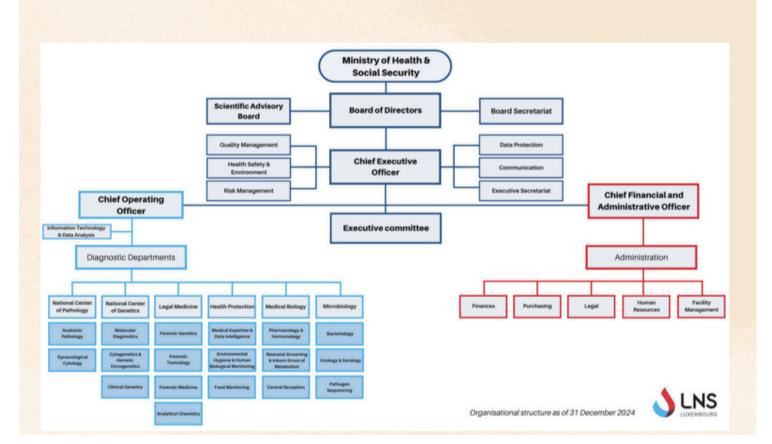
Situation as at 31 December 2024

Chief Financial and Administrative Officer Ms Safaâ Moujahid

Chief Operating Officer

Dr Thomas Dentzer

ORGANISATION CHART







National Center of Pathology

- o Integrative genomic and transcriptomic profiles from a prospective cervical cancer study (RAIDs).
 - Maud Kamal; Solenn Barraud; Lolita Lecompte; Maral Halladjian; Emmanuelle Jeannot; Elodie Girard; Sylvain Baulande; Patricia Legoix; Fabrice Lecuru; Léa Pauly; Mathilde Saint-Ghislain; Stacy Cyrille; Célia Dupain; Constance Lamy; Olfa Chouchane-Mlik; Alexandra Oniga; Michel Mittelbronn; Christophe Le Tourneau; Aurélien Latouche; Nicolas Servant; Suzy Scholl; Ivan Bièche.
- The role of [18 F]FDOPA PET as an adjunct to conventional MRI in the diagnosis of aggressive glial lesions. Zinsz A, Pouget C, Rech F, Taillandier L, Blonski M, Amlal S, Imbert L, Zaragori T, Verger A. Eur J Nucl Med Mol Imaging. 2024 Jul;51(9):2672-2683. doi: 10.1007/ s00259-024-06720-y. Epub 2024 Apr 19. PMID: 38637354.
- Staging of endometrial cancer. An illustrated guide to understand and apply the 2023 FIGO system. A. García Bolado, E. Julián Gómez, D. Val Garijo. Radiología, 2024, ISSN 0033-8338. https://doi.org/10.1016/j.rx.2024.06.004.
- Systematic assessment of tumor necrosis at baseline in cervical cancer An independent factor associated with poor outcome.
 Chouchane-Mlik O, Oniga A, Latouche A, Halladjian M, Kleine-Borgmann FB, Gérardy JJ, Mittelbronn M, Kamal M, Scholl SM. Hum Pathol. 2024 Jan;143:62-70. doi: 10.1016/j.humpath.2023.12.003. Epub 2023 Dec 20. PMID: 38135059.
- Digital cytology with machine learning compared to conventional microscopy for anal cytology: A preliminary study. Rene Gerhard; Cioly Rivero Colmenarez; Gaël Hammer; Corinne Selle. Cytopathology. 2024;35(Suppl. 1):5-44. DOI: 10.1111/cyt.13404
- International Society of Urological Pathology Consensus Conference on Current Issues in Bladder Cancer. Working Group 4: Molecular Subtypes of Bladder Cancer-Principles of Classification and Emerging Clinical Utility. Joshua I Warrick 1, Hikmat Al-Ahmadie 2, David M Berman 3, Peter C Black 4, Thomas W Flaig 5, Mattias Höglund 6, Lukas Bubendorf 7, Theodorus H van der Kwast 8, Liang Cheng 9; Members of the ISUP Bladder Tumor Consensus Panel. Collaborators: *Members of the ISUP Bladder Tumor Consensus Panel: Adebowale Adeniran, Hikmat Al-Ahimadie, Fernando Algaba, Yves Allory, Selina Bhattarai, Peter Black, David Berman, Simone Bertz, Lukas Bubendorf, Birgitte Carlsen, Rita Carvalho, Liang Cheng, Obinna Chijioke, Yong Mee Cho, Eva Comperat, Isabela di Cunha, Julien Dagher, Isabella de Cunha, Brett Delahunt, Michelle Downes, Thomas Flaig, Achim Fleischmann, Cosmin Florescu, Jacqueline Fontugne, Vera Genitsch, Guro Horni Gløersen, Michael von Gunten, Rainer Grobholz, Donna HanselArndt Hartmann, Loren Herrera Hernandez, Mattias Hogland, Jiaoti Huang, Brad Jensen, Kenneth Iczkowski, Rafael Jimenez, Bojana Jovanovic, Ashish Kamat, Jens Koellermann, Trevor Levin, Fredrik Liedberg Antonio Lopez-Beltran, Anand C Loya, Marianne Lyngra, Teresa McHale, Khadidja Mokeddem, George Netto, Maya Nourieh, Declan O'Rourke, Irina-Alexandra Ostahi, Gladell Paner, Maria M Picken, Flavia Guzman Pineda, Camelia Radulescu Maria Raspollini, Henning Reis, Shi Ruoyu, Hemamali Samaratunga, Remi Semba, Nigam Shah, Steven Shen, Steven Smith, Tovia Smith, John Srigley, Sueli Suzigan, Nicole Swarbrick, Ildiko Szalay, Inger Talleraas, Jean-Christophe Tille, Marieta Toma, Isabel Trias, Toyonori Tsuzuki, Theodorus van der Kwast, Bas van Rhijn, Murali Varma, Sofie Verbeke, Sangeeta Verma, Tatjana Vlajnic, Ljiljana Vlatkovic, Anne Warren, Joshua Warrick, Sean Williamson, Sara Wobker, Clifton Woods, Chen Yang, Ghilsuk Yoon.
- Neurooncology: 2024 update. Mittelbronn M. Free Neuropathol. 2024 Sep 27;5:21. doi: 10.17879/freeneuropathology-2024-5809.
 eCollection 2024 Jan. PMID: 39385753.
- Metformin impacts the differentiation of mouse bone marrow cells into macrophages affecting tumour immunity.
 Scafidi A, Lind-Holm Mogensen F, Campus E, Pailas A, Neumann K, Legrave N, Bernardin F, Pereira SL, Antony PMA, Nicot N, Mittelbronn M, Grünewald A, Nazarov PV, Poli A, Van Dyck E, Michelucci A. Heliyon. 2024 Sep 11;10(18):e37792. doi: .1016/j.heliyon.2024.e37792. eCollection 2024 Sep 30. PMID: 39315158







National Center of Pathology

- ATh17 cell-intrinsic glutathione/mitochondrial-IL-22 axis protects against intestinal inflammation.
 Bonetti L, Horkova V, Grusdat M, Longworth J, Guerra L, Kurniawan H, Franchina DG, Soriano-Baguet L, Binsfeld C, Verschueren C, Spath S, Ewen A, Koncina E, Gérardy JJ, Kobayashi T, Dostert C, Farinelle S, Härm J, Fan YT, Chen Y, Harris IS, Lang PA, Vasiliou V, Waisman A, Letellier E, Becher B, Mittelbronn M, Brenner D. Cell Metab. 2024 Aug 6;36(8):1726-1744.e10. doi: 10.1016/j.cmet.2024.06.010. Epub 2024 Jul 9. PMID: 38986617
- Machine Learning-Assisted Classification of Paraffin-Embedded Brain Tumors with Raman Spectroscopy. Klamminger GG, Mombaerts L,
 Kemp F, Jelke F, Klein K, Slimani R, Mirizzi G, Husch A, Hertel F, Mittelbronn M, Kleine Borgmann FB. Brain Sci. 2024 Mar 23;14(4):301. doi: 10.3390/brainsci14040301. PMID: 38671953.
- Glioblastoma-instructed microglia transition to heterogeneous phenotypic states with phagocytic and dendritic cell-like features in patient tumors and patient-derived orthotopic xenografts. Yabo YA, Moreno-Sanchez PM, Pires-Afonso Y, Kaoma T, Nosirov B, Scafidi A, Ermini L, Lipsa A, Oudin A, Kyriakis D, Grzyb K, Poovathingal SK, Poli A, Muller A, Toth R, Klink B, Berchem G, Berthold C, Hertel F, Mittelbronn M, Heiland DH, Skupin A, Nazarov PV, Niclou SP, Michelucci A, Golebiewska A. Genome Med. 2024 Apr 2;16(1):51. doi: 10.1186/s13073-024-01321-8. PMID: 38566128
- Glioma subtype classification from histopathological images using in-domain and out-of-domain transfer learning: An experimental study.
 Despotovic V, Kim SY, Hau AC, Kakoichankava A, Klamminger GG, Borgmann FBK, Frauenknecht KBM, Mittelbronn M, Nazarov PV.
 Heliyon. 2024 Mar 6;10(5):e27515. doi: 10.1016/j.heliyon.2024.e27515. eCollection 2024 Mar 15. PMID: 38562501
- Impact of Formalin- and Cryofixation on Raman Spectra of Human Tissues and Strategies for Tumor Bank Inclusion. Mirizzi G, Jelke F, Pilot M, Klein K, Klamminger GG, Gérardy JJ, Theodoropoulou M, Mombaerts L, Husch A, Mittelbronn M, Hertel F, Kleine Borgmann FB. Molecules. 2024 Mar 6;29(5):1167. doi: 10.3390/molecules29051167. PMID: 38474679
- Computational Assessment of Spectral Heterogeneity within Fresh Glioblastoma Tissue Using Raman Spectroscopy and Machine Learning Algorithms.
 Klein K, Klamminger GG, Mombaerts L, Jelke F, Arroteia IF, Slimani R, Mirizzi G, Husch A, Frauenknecht KBM, Mittelbronn M, Hertel F, Kleine Borgmann FB. Molecules. 2024 Feb 23;29(5):979. doi: 10.3390/molecules.29050979. PMID: 38474491
- <u>Blocking TGF-β- and Epithelial-to-Mesenchymal Transition (EMT)-mediated activation of vessel-associated mural cells in glioblastoma</u>
 <u>impacts tumor angiogenesis.</u> Merk L, Regel K, Eckhardt H, Evers M, El-Ayoubi A, Mittelbronn M, Krüger M, Gérardy JJ, Mack AF, Naumann U. Free Neuropathol. 2024 Mar 1:5:4. doi: 10.17879/freeneuropathology-2024-5188. eCollection 2024 Jan. PMID: 38455669
- Cell adhesion affects the properties of interstitial fluid flow: A study using multiscale poroelastic composite modeling. Dehghani H,
 Holzapfel GA, Mittelbronn M, Zilian A. J Mech Behav Biomed Mater. 2024 May; 153:106486. doi: 10.1016/j.jmbbm.2024.106486. Epub 2024 Feb 27. PMID: 38428205
- <u>CLN3 deficiency leads to neurological and metabolic perturbations during early development.</u> Heins-Marroquin U, Singh RR, Perathoner S, Gavotto F, Merino Ruiz C, Patraskaki M, Gomez-Giro G, Kleine Borgmann F, Meyer M, Carpentier A, Warmoes MO, Jäger C, Mittelbronn M, Schwamborn JC, Cordero-Maldonado ML, Crawford AD, Schymanski EL, Linster CL. Life Sci Alliance. 2024 Jan 9;7(3):e202302057. doi: 10.26508/lsa.202302057. Print 2024 Mar. PMID: 38195117





National Center of Genetics

- Variants in LRRC7 lead to intellectual disability, autism, aggression and abnormal eating behaviors.
 Willim J, Woike D, Greene D, Das S, Pfeifer K, Yuan W, Lindsey A, Itani O, Böhme AL, Tibbe D, Hönck HH, Hassani Nia F; Undiagnosed Diseases Network; Zech M, Brunet T, Faivre L, Sorlin A, Vitobello A, Smol T, Colson C, Baranano K, Schatz K, Bayat A, Schoch K, Spillmann R, Davis EE, Conboy E, Vetrini F, Platzer K, Neuser S, Gburek-Augustat J, Grace AN, Mitchell B, Stegmann A, Sinnema M, Meeks N, Saunders C, Cadieux-Dion M, Hoyer J, Van-Gils J, de Sainte-Agathe JM, Thompson ML, Bebin EM, Weisz-Hubshman M, Tabet AC, Verloes A, Levy J, Latypova X, Harder S, Silverman GA, Pak SC, Schedl T, Freson K, Mumford A, Turro E, Schlein C, Shashi V, Kreienkamp HJ. Nat Commun. 2024 Sep 10;15(1):7909. doi: 10.1038/s41467-024-52095-x. PMID: 39256359; PMCID: PMC11387733.
- Variants of NAV3, a neuronal morphogenesis protein, cause intellectual disability, developmental delay, and microcephaly.
 Ghaffar A, Akhter T, Strømme P, Misceo D, Khan A, Frengen E, Umair M, Isidor B, Cogné B, Khan AA, Bruel AL, Sorlin A, Kuentz P, Chiaverini C, Innes AM, Zech M, Baláž M, Havrankova P, Jech R, Ahmed ZM, Riazuddin S, Riazuddin S. Commun Biol. 2024 Jul 8;7(1):831. doi:10.1038/s42003-024-06466-1. PMID: 38977784: PMCID: PMC11231287.
- Expectations, needs and mid-term outcomes in people accessing to secondary findings from ES: 1st French mixed study (FIND Study). Viora-Dupont E, Robert F, Chassagne A, Pélissier A, Staraci S, Sanlaville D, Edery P, Lesca G, Putoux A, Pons L, Cadenes A, Baurand A, Sawka C, Bertolone G, Spetchian M, Yousfi M, Salvi D, Gautier E, Vitobello A, Denommé-Pichon AS, Bruel AL, Tran Mau-Them F, Faudet A, Keren B, Labalme A, Chatron N, Abel C, Dupuis-Girod S, Poisson A, Buratti J, Mignot C, Afenjar A, Whalen S, Charles P, Heide S, Mouthon L, Moutton S, Sorlin A, Nambot S, Briffaut AS, Asensio ML, Philippe C, Thauvin-Robinet C, Héron D, Rossi M, Meunier-Bellard N, Gargiulo M, Peyron C, Binquet C, Faivre L. Eur J Hum Genet. 2024 Sep;32(9):1166-1183. doi: 10.1038/s41431-024-01616-9. PMID: 38802530; PMCID: PMC11368951.
- Unveiling the crucial neuronal role of the proteasomal ATPase subunit gene *PSMC5* in neurodevelopmental proteasomopathies. Küry S, Stanton JE, van Woerden G, Hsieh TC, Rosenfelt C, Scott-Boyer MP, Most V, Wang T, Papendorf JJ, de Konink C, Deb W, Vignard V, Studencka-Turski M, Besnard T, Hajdukowicz AM, Thiel F, Möller S, Florenceau L, Cuinat S, Marsac S, Wentzensen I, Tuttle A, Forster C, Striesow J, Golnik R, Ortiz D, Jenkins L, Rosenfeld JA, Ziegler A, Houdayer C, Bonneau D, Torti E, Begtrup A, Monaghan KG, Mullegama SV, Volker-Touw CMLN, van Gassen KLI, Oegema R, de Pagter M, Steindl K, Rauch A, Ivanovski I, McDonald K, Boothe E, Dauber A, Baker J, Fabie NAV, Bernier RA, Turner TN, Srivastava S, Dies KA, Swanson L, Costin C, Jobling RK, Pappas J, Rabin R, Niyazov D, Tsai AC, Kovak K, Beck DB, Malicdan M, Adams DR, Wolfe L, Ganetzky RD, Muraresku C, Babikyan D, Sedláček Z, Hančárová M, Timberlake AT, Al Saif H, Nestler B, King K, Hajianpour MJ, Costain G, Prendergast D, Li C, Geneviève D, Vitobello A, Sorlin A, Philippe C, Harel T, Toker O, Sabir A, Lim D, Hamilton M, Bryson L, Cleary E, Weber S, Hoffman TL, Cueto-González AM, Tizzano EF, Gómez-Andrés D, Codina-Solà M, Ververi A, Pavlidou E, Lambropoulos A, Garganis K, Rio M, Levy J, Jurgensmeyer S, McRae AM, Lessard MK, D'Agostino MD, De Bie I, Wegler M, Jamra RA, Kamphausen SB, Bothe V, Busch LM, Völker U, Hammer E, Wende K, Cogné B, Isidor B, Meiler J, Bosc-Rosati A, Marcoux J, Bousquet MP, Poschmann J, Laumonnier F, Hildebrand PW, Eichler EE, McWalter K, Krawitz PM, Droit A, Elgersma Y, Grabrucker AM, Bolduc FV, Bézieau S, Ebstein F, Krüger E. medRxiv [Preprint]. 2024 Jan 26:2024.01.13.24301174. doi:10.1101/2024.01.13.24301174. PMID: 38293138; PMCID: PMC10827246.







National Center of Genetics

- Clinico-biological refinement of BCL11B-related disorder and identification of an episignature: A series of 20 unreported individuals. Sabbagh Q, Haghshenas S, Piard J, Trouvé C, Amiel J, Attié-Bitach T, Balci T, Barat-Houari M, Belonis A, Boute O, Brightman DS, Bruel AL, Caraffi SG, Chatron N, Collet C, Dufour W, Edery P, Fong CT, Fusco C, Gatinois V, Gouy E, Guerrot AM, Heide S, Joshi A, Karp N, Keren B, Lesieur-Sebellin M, Levy J, Levy MA, Lozano C, Lyonnet S, Margot H, Marzin P, McConkey H, Michaud V, Nicolas G, Nizard M, Paulet A, Peluso F, Pernin V, Perrin L, Philippe C, Prasad C, Prasad M, Relator R, Rio M, Rondeau S, Ruault V, Ruiz-Pallares N, Sanchez E, Shears D, Siu VM, Sorlin A, Tedder M, Tharreau M, Mau-Them FT, van der Laan L, Van Gils J, Verloes A, Whalen S, Willems M, Yauy K, Zuntini R, Kerkhof J, Sadikovic B, Geneviève D. Genet Med. 2024 Jan;26(1):101007. doi: 10.1016/j.gim.2023.101007. PMID: 37860968.
- Genetic evaluation of patients with multiple primary cancers.
 Freire MV, Thissen R, Martin M, Fasquelle C, Helou L, Durkin K, Artesi M, Lumaka A, Leroi N, Segers K, Deberg M, Gatot JS, Habran L,
 Palmeira L, Josse C, Bours V. Oncol Lett. 2024 Oct 15;29(1):4. doi: 10.3892/ol.2024.14750. PMID: 39492936; PMCID: PMC11526284.
- Digenic Inheritance of Mutations in Homologous Recombination Genes in Cancer Patients.
 Freire MV, Martin M, Segers K, Sepulchre E, Leroi N, Coupier J, Kalantari HR, Wolter P, Collignon J, Polus M, Plomteux O, Josse C, Bours V. J
 Pers Med. 2024 May 29;14(6):584. doi: 10.3390/jpm14060584. PMID: 38929805; PMCID: PMC11204488.
- A step-by-step, multidisciplinary strategy to maximize the yield of genetic testing in pediatric patients with chronic kidney diseases.
 Caliment A, Van Reeth O, Hougardy C, Dahan K, Niel O.
 Pediatr Nephrol. 2024 Sep;39(9):2733-2740. doi: 10.1007/s00467-024-06299-4. PMID: 38316682.
- Molecular consequences of PQBP1 deficiency, involved in the X-linked Renpenning syndrome.
 Courraud J, Engel C, Quartier A, Drouot N, Houessou U, Plassard D, Sorlin A, Brischoux-Boucher E, Gouy E, Van Maldergem L, Rossi M, Lesca G, Edery P, Putoux A, Bilan F, Gilbert-Dussardier B, Atallah I, Kalscheuer VM, Mandel JL, Piton A.
 Mol Psychiatry. 2024 Feb;29(2):287-296. doi:10.1038/s41380-023-02323-5. PMID: 38030819.
- Glioblastoma-instructed microglia transition to heterogeneous phenotypic states with phagocytic and dendritic cell-like features in patient tumors and patient-derived orthotopic xenografts.
 - Yabo YA, Moreno-Sanchez PM, Pires-Afonso Y, Kaoma T, Nosirov B, Scafidi A, Ermini L, Lipsa A, Oudin A, Kyriakis D, Grzyb K, Poovathingal SK, Poli A, Muller A, Toth R, Klink B, Berchem G, Berthold C, Hertel F, Mittelbronn M, Heiland DH, Skupin A, Nazarov PV, Niclou SP, Michelucci A, Golebiewska A.
 - Genome Med. 2024 Apr 2;16(1):51. doi:10.1186/s13073-024-01321-8. PMID: 38566128; PMCID: PMC10988817.
- The dopamine receptor D1 inhibitor, SKF83566, suppresses GBM stemness and invasion through the DRD1-c-Myc-UHRF1 interactions.
 Xue Z, Zhang Y, Zhao R, Liu X, Grützmann K, Klink B, Zhang X, Wang S, Zhao W, Sun Y, Han M, Wang X, Hu Y, Liu X, Yang N, Qiu C, Li W, Huang B, Li X, Bjerkvig R, Wang J, Zhou W.
- J Exp Clin Cancer Res. 2024 Jan 22;43(1):25. doi: 10.1186/s13046-024-02947-7. PMID: 38246990; PMCID: PMC10801958.
- Upregulation versus loss of function of NTRK2 in 44 affected individuals leads to 2 distinct neurodevelopmental disorders.
 Berger E, Jauss RT, Ranells JD, Zonic E, von Wintzingerode L, Wilson A, Wagner J, Tuttle A, Thomas-Wilson A, Schulte B, Rabin R, Pappas J,
 Odgis JA, Muthaffar O, Mendez-Fadol A, Lynch M, Levy J, Lehalle D, Lake NJ, Krey I, Kozenko M, Knierim E, Jouret G, Jobanputra V, Isidor B,
 Hunt D, Hsieh TC, Holtz AM, Haack TB, Gold NB, Dunstheimer D, Donge M, Deb W, De La Rosa Poueriet KA, Danyel M, Christodoulou J,
 Chopra S, Callewaert B, Busche A, Brick L, Bigay BG, Arlt M, Anikar SS, Almohammal MN, Almanza D, Alhashem A, Bertoli-Avella A, Sticht H,
 Abou Jamra R.







National Center of Genetics

- Natural history of adults with KBG syndrome: A physician-reported experience.
 Bayat A, Grimes H, de Boer E, Herlin MK, Dahl RS, Lund ICB, Bayat M, Bolund ACS, Gjerulfsen CE, Gregersen PA, Zilmer M, Juhl S, Cebula K, Rahikkala E, Maystadt I, Peron A, Vignoli A, Alfano RM, Stanzial F, Benedicenti F, Currò A, Luk HM, Jouret G, Zurita E, Heuft L, Schnabel F, Busche A, Veenstra-Knol HE, Tkemaladze T, Vrielynck P, Lederer D, Platzer K, Ockeloen CW, Goel H, Low KJ. Genet Med. 2024
 Aug; 26(8):101170. doi: 10.1016/j.gim.2024.101170. Epub 2024 May 27. PMID: 38818797.
- Recurrence of Phospholipase A2 Receptor-Associated Membranous Nephropathy in the Absence of Serum Anti-Phospholipase A2 Receptor Antibodies Reappearance.
 Bensouna I, Delafosse M, Cartery C, Stehlé T, Rabate C, Boullenger F, Buob D, Boffa JJ, Dahan K, Esteve E.
 Kidney Int Rep. 2024 Dec 10;10(3):952-955. doi: 10.1016/j.ekir.2024.12.009. PMID: 40225389; PMCID: PMC11993193.
- K acetyltransferase 2B (KAT2B) variants can be responsible for early onset steroid-resistant nephrotic syndrome.
 Niel O, Caliment A, Hougardy C, Monestier O, Dahan K.
 J Med Genet. 2024 Nov 25;61(12):1113-1115. doi: 10.1136/jmg-2024-110142. PMID: 39366742.
- Genetic counselling legislation and practice in cancer in EU Member States.
 McCrary JM, Van Valckenborgh E, Poirel HA, de Putter R, van Rooij J, Horgan D, Dierks ML, Antonova O, Brunet J, Chirita-Emandi A, Colas C, Dalmas M, Ehrencrona H, Grima C, Janavičius R, Klink B, Koczok K, Krajc M, Lace B, Leitsalu L, Mistrik M, Paneque M, Primorac D, Roetzer KM, Ronez J, Slámová L, Spanou E, Stamatopoulos K, Stoklosa T, Strang-Karlsson S, Szakszon K, Szczałuba K, Turner J, van Dooren MF, van Zelst-Stams WAG, Vassallo LM, Wadt KAW, Žigman T, Ripperger T, Genuardi M, Van den Bulcke M, Bergmann AK.
 Eur J Public Health. 2024 Aug 1;34(4):666-675. doi: 10.1093/eurpub/ckae093. PMID: 38905592; PMCID: PMC11293827.







Medical Biology

 $^{\circ} Morel, J. Paoli, C. Emond, F. Debaugnies, E.M. Hardy, M. Creta, M. Montagne, P. Borde, A. Van Nieuwenhuyse, R.C. Duca, H. Schroeder, N. Grova, Pharmacokinetic characterisation of a valproate Autism Spectrum Disorder rat model in a context of co-exposure to α-Hexabromocyclododecane, Environmental Toxicology and Pharmacology, 2024 (105)104343, https://doi.org/10.1016/j.etap.2023.104343$





Microbiology

- Kohlenberg A, Svartström O, Apfalter P, Hartl R, Bogaerts P, Huang TD, Chudejova K, Malisova L, Eisfeld J, Sandfort M, Hammerum AM, Roer L, Räisänen K, Dortet L, Bonnin RA, Tóth Á, Tóth K, Clarke C, Cormican M, Griškevičius A, Khonyongwa K, Meo M, Niedre-Otomere B, Vangravs R, Hendrickx AP, Notermans DW, Samuelsen Ø, Caniça M, Manageiro V, Müller V, Mäkitalo B, Kramar U, Pirs M, Palm D, Monnet DL, Alm E, Linkevicius Emergence of E.coli ST131 carrying carbapenemase genes, European Union/EEA, August 2012 to May 2024 Euro Surveill. 2024 Nov;29(47):2400727. doi: 10.2807/15
- Shaw D, Torreblanca RA, Amin-Chowdhury Z, Bautista A, Bennett D, Broughton K, Casanova C, Choi EH, Claus H, Corcoran M, Cottrell S, Cunney R, Cuypers L, Dalby T, Davies H, de Gouveia L, Deghmane AE, Desmet S, Domenech M, Drew R, Plessis MD, Duarte C, Fuursted K, Golden A, Almeida SCG, Henares D, Henriques-Normark B, Hilty M, Hoffmann S, Humphreys H, Jacobsson S, Johnson C, Jolley KA, Kawabata A, Kozakova J, Kristinsson KG, Krizova P, Kuch A, Ladhani S, Lâm TT, Ayala MEL, Lindholm L, Litt D, Maiden MCJ, Martin I, Martiny D, Mattheus W, McCarthy ND, Meehan M, Meiring S, Mölling P, Morfeldt E, Morgan J, Mulhall R, Muñoz-Almagro C, Murdoch D, Musilek M, Novakova L, Oftadeh S, Perez-Arguello A, Pérez-Vázquez MD, Perrin M, Prevost B, Roberts M, Rokney A, Ron M, Sanabria OM, Scott KJ, Sempere J, Siira L, de Lemos APS, Sintchenko V, Skoczyńska A, Slotved HC, Smith AJ, Taha MK, Toropainen M, Tzanakaki G, Vainio A, van der Linden MPG, van Sorge NM, Varon E, Moreno JV, Vohrnova S, von Gottberg A, Yuste J, Brueggemann AB. The importance of microbiology reference laboratories and adequate funding for infectious disease surveillance Lancet Digit Health. 2024 Dec 20:S2589-7500(24)00241-3. doi: 10.1016/S2589-7500(24)00241-3.
- Moore HL, Aabye M, Hoban A, Rosner B, Lefevre SK, Litrup E, Müller L, Ethelberg S, Simon S, Balasegaram S, Larkin L, Jernberg C, Takkinen J; EU/EEA/UK S. Braenderup Outbreak Investigation Group; Members of the EU/EEA/UK S. Braenderup Outbreak Investigation Group Multinational collaboration in solving a European Salmonella Braenderup outbreak linked to imported melons, 2021 Euro Surveill. 2024 Jan;29(1):2300273. doi: 10.2807/1560-7917.ES.2024.29.1.2300273. PMID: 38179625; PMCID: PMC10905663.
- Hock L, Walczak C, Mosser J, Ragimbeau C, Cauchie HM Exploring the Role of the Environment as a Reservoir of Antimicrobial-Resistant Campylobacter: Insights from Wild Birds and Surface Waters. Microorganisms. 2024 Aug 8;12(8):1621. doi: 10.3390/ microorganisms12081621. PMID: 39203463; PMCID: PMC11356556.
- Citation style for this article: Broberg Eeva K, Vukovikj Maja, Svartström Olov, Hasibra Iris, Riess Maximilian, Melidou Angeliki, Members of the ERLI-Net network Antigenic changes in influenza A(H3N2) driven by genetic evolution: Insights from virological surveillance, EU/EEA, week 40/2023 to week 9/2024. Euro Surveill. 2024;29(50):pii=2400395. https://doi.org/10.2807/1560-7917.ES.2024.29.50.2400395







Health Protection

- Gonçalves, A., Leitão, M., Fernandes, J., Saavedra, MJ, Pereira, C, Simões, M., Borges, A (2024). Photodynamic activation of phytochemicalantibiotic combinations for combatting Staphylococcus aureus from acute wound infections. Journal of Photochemistry and Photobiology B: Biology, (258) 112978. https://doi.org/10.1016/j.jphotobiol.2024.112978
- Amanda Fernandes, Demetris Avraam, Tim Cadman, Payam Dadvand, Mònica Guxens, Anne-Claire Binter, Angela Pinot de Moira, Mark Nieuwenhuijsen, Liesbeth Duijts, Jordi Julvez, Montserrat De Castro, Serena Fossati, Sandra Márquez, Tanja Vrijkotte, Ahmed Elhakeem, Rosemary McEachan, Tiffany Yang, Marie Pedersen, Johan Vinther, Johanna Lepeule, Barbara Heude, Vincent W V Jaddoe, Susana Santos, Marieke Welten, Hanan El Marroun, Annemiek Mian, Sandra Andrušaitytė, Aitana Lertxundi, Jesús Ibarluzea, Ferran Ballester, Ana Esplugues, Maria Torres Toda, Jennifer R Harris, Johanna Lucia Thorbjørnsrud Nader, Giovenale Moirano, Silvia Maritano, Rebecca Catherine Wilson, Martine Vrijheid. (2024). Green spaces and respiratory, cardiometabolic, and neurodevelopmental outcomes: An individual-participant data meta-analysis of >35.000 European children. Environ Int. 2024 Aug:190:108853. https://doi:10.1016/j.envint.2024.108853
- Creta, M., Verscheure, E., Tans, B., Devriese, H., Devriendt, A., Devolder, D., Lebegge, R., Poels, K., Godderis, L., Duca, R-C., Vanoirbeek, J.A J. (2024). An Assessment of Surface Contamination and Dermal Exposure to 5-Fluorouracil in Healthcare Settings by UPLC-MS/MS Using a New Atmospheric Pressure Ionization Source. Toxics, 12 (11), 766. https://doi: 10.3390/toxics12110766 Access via repository
- Hopf, N.B., Rousselle, C., Poddalgoda, D., Lamkarkach, F., Bessems, J., Schmid, K., Jones, K., Takaki, K., Casteleyn, L., Jeddi, M.Z., Bader, M., Koller, M., Browne, P., Fitzgerald, R., Viegas, S., Goeen, T., Santonen, T., Vaananen, V., Duca, R-C., Pasanen-Kase, R. (2024). A harmonized occupational biomonitoring approach. Environment International, 191, 108990. https://doi. 10.1016/j.envint.2024.108990
- De Nys, S., Turkalj, M., Duca, R.C., Covaci, A., Elskens, M., Godderis, L., Vanoirbeek, J., Van Meerbeek, B., Landuyt, K.L V. with Landuyt, K.L V. (2024). Level of BPA contamination in resin composites determines BPA release. Dental Materials, 40 (7), 1025-1030. doi: 10.1016/j.dental.2024.05.006
- Cseresznye, A., Hardy, E.M., Bamai, Y.A., Cleys, P., Poma, G., Malarvannan, G., Scheepers, P.T. J., Viegas, S., Martins, C., Porras, S.P., Santonen, T., Godderis, L., Verdonck, J., Poels, K., Silva, M.J., Louro, H., Martinsone, I., Akulova, L., van Dael, M., van Nieuwenhuyse, A., Mahiout, S., Duca, R.C., Covaci, A. (2024). HBM4EU E-waste study: Assessing persistent organic pollutants in blood, silicone wristbands, and settled dust among E-waste recycling workers in Europe. Environmental Research, 250, 118537. doi: 10.1016/j.envres.2024.118537
- Tralec, Z., Antignac, J-P., Bandow, N., Been, F.M., Belova, L., Bessems, J., Le Bizec, B., Brack, W., Cano-Sancho, G., Chaker, J., Covaci, A., Creusot, N., David, A., Debrauwer, L., Dervilly, G., Duca, R.C., Fessard, V., Grimalt, J.O., Guerin, T., Habchi, B., Hecht, H., Hollender, J., Jamin, E.L., Klanova, J., Kosjek, T., Krauss, M., Lamoree, M., Lavison-Bompard, G., Meijer, J., Moeller, R., Mol, H., Mompelat, S., Van Nieuwenhuyse, A., Oberacher, H., Parinet, J., Van Poucke, C., Roskar, R., Togola, A., Trontelj, J., Price, E.J. (2024). Innovative analytical methodologies for characterizing chemical exposure with a view to next-generation risk assessment. Environment International, 186, 108585. doi: 10.1016/j.envint.2024.108585 Open Access
- Reale, E., Jeddi, M.Z., Paini, A., Connolly, A., Duca, R., Cubadda, F., Benfenati, E., Bessems, J., Galea, K.S., Dirven, H., Santonen, T., Koch, H.M., Jones, K., Sams, C., Viegas, S., Kyriaki, M., Campisi, L., David, A., Antignac, J-P., Hopf, N.B. with Hopf, N.B. (corresp. author) (2024). Human biomonitoring and toxicokinetics as key building blocks for next generation risk assessment. Environment International, 184, 108474. doi: 10.1016/j.envint.2024.108474







Health Protection

- Musa Obadia P, Milambo Kapia P, Bonneure A, Duca RC, Creta M, Kayembe-Kitenge T, Tytgat J, Okitundu D, Banza Lubaba Nkulu C, Nemery B. Bombé, an undetermined substance that caused an outbreak of illicit drug use in Kinshasa, Democratic Republic of the Congo. Clin Toxicol (Phila). 2023 Dec 4:1-4. doi: 10.1080/15563650.2023.2276040. Epub ahead of print. PMID: 38047882.
- Rani Claus, Wai Kei Chu, Luke D. Savory, Astrid Staelens, Katrien Poels, Mike Draper, Matteo Creta, Jeroen A.J. Vanoirbeek, Comparison of a novel glove connector to chemical tape as a sealing device between gloves and protection suits, Journal of Hazardous Materials, Volume 476, 2024, 135186, ISSN 0304-3894, https://doi.org/10.1016/j.jhazmat.2024.135186.
- Cuffaro, F., Dahm, G., Marson, C., Berlemont, P., Yegles, M., Allar, C., Fauchet, L., Creta, M., Schneider, S., 2024. Contamination of a drug consumption room with drugs and potential risks for social health care workers. https://doi.org/10.21203/rs.3.rs-3978967/v1
- Eline Verscheure, Ilana Struys, Matteo Creta, Katrien Poels, Jeroen Vanoirbeek, Liesbeth Lenaerts, Frédéric Amant, Manosij Ghosh & Lode Godderis. Development and validation of an UPLC-ESI-MS/MS method for simultaneous quantification of antineoplastic agents and their metabolites in human plasma after unintentional exposure. Arch Toxicol (2024). https://doi.org/10.1007/s00204-024-03900-5.
- Eline Verscheure, Matteo Creta, Katrien Poels, Jeroen Vanoirbeek, Manosij Ghosh, Lode Godderis. Quantification of five antineoplastic agents in swab samples using UPLC-ESI-MS/MS: method development and validation, Analytica Chimica Acta, 2024, 343492, ISSN 0003-2670, https://doi.org/10.1016/j.aca.2024.343492
- Cleys, P., Hardy, E., Bamai, Y.A., Poma, G., Cseresznye, A., Malarvannan, G., Scheepers, P.T J., Viegas, S., Porras, S.P., Santonen, T., Godderis, L., Verdonck, J., Poels, K., Martins, C., Silva, M.J., Louro, H., Martinsone, I., Akulova, L., Van Nieuwenhuyse, A., Graumans, M., Mahiout, S., Duca, R.C., Covaci, A. (2024). HBM4EU e-waste study: Occupational exposure of electronic waste workers to phthalates and DINCH in Europe. International Journal of Hygiene And Environmental Health, 255, 114286. doi: 10.1016/j.ijheh.2023.114286
- Morel, C., Paoli, J., Emond, C., Debaugnies, F., Hardy, E.M., Creta, M., Montagne, M., Borde, P., Van Nieuwenhuyse, A., Duca, R.C., Schroeder, H., Grova, N. (2024). Pharmacokinetic characterisation of a valproate Autism Spectrum Disorder rat model in a context of co-exposure to α-Hexabromocyclododecane. Environmental Toxicology And Pharmacology, 105, 104343. doi: 10.1016/j.etap.2023.104343
- Chbihi, K., Menouni, A., Hardy, E., Creta, M., Grova, N., Van Nieuwenhuyse, A., Godderis, L., El Jaafari, S., Duca, R-C. (2024). Exposure of
 children to brominated flame retardants and heavy metals in Morocco: Urine and blood levels in association with global cytosine and
 adenine methylation. Environment International, 183, 108409. doi: 10.1016/j.envint.2023
- Namorado S., Martins C., Ogura J., Assunção R., Vasco E., Appenzeller B., I Halldorsson T., Janasik B., Kolossa-Gehring M., Van Nieuwenhuyse A., Ólafsdóttir K., Rambaud L., Riou M., Silva S., Wasowicz W., Weber T., Esteban-López M., Castaño A., Gilles L., Rodríguez Martin L., Govarts E., Schoeters G., Viegas S., Silva MJ., Alvito P. Exposure assessment of the European adult population to deoxynivalenol – Results from the HBM4EU Aligned Studies. Food Res Int. 2024 Dec;198:115281. doi: 10.1016/j.foodres.2024.115281. Epub 2024 Nov 6. PMID: 39643334.
- Galea KS., Paini A., Bachler G., Alejandre-Colomo C., Fantke P., Fransman W., Jung C., Van Nieuwenhuyse A., von Goetz N., Connolly A. Reflection on the landscape of education in the area of exposure modelling. Environment International. 2024 Nov;193:109103. doi: 10.1016/j.envint.2024.109103. Epub 2024 Oct 28. PMID: 39486252.





- Tagne-Fotso R., Riou M., Saoudi A., Zeghnoun A., Frederiksen H., Berman T., Montazeri P., Andersson AM., Rodriguez-Martin L., Akesson A., Berglund M., Biot P., Castaño A., Charles MA., Cocco E., Den Hond E., Dewolf MC., Esteban-Lopez M., Gilles L., Govarts E., Guignard C., Gutleb AC., Hartmann C., Kold Jensen T., Koppen G., Kosjek T., Lambrechts N., McEachan R., Sakhi AK., Snoj Tratnik J., Uhl M., Urquiza J., Vafeiadi M., Van Nieuwenhuyse A., Vrijheid M., Weber T., Zaros C., Tarroja-Aulina E., Knudsen LE., Covaci A., Barouki R., Kolossa-Gehring M., Schoeters G., Denys S., Fillol C., Rambaud L. Exposure to bisphenol A in European women from 2007 to 2014 using human biomonitoring data The European Joint Programme HBM4EU. Environment International. 2024 Aug;190:108912. doi: 10.1016/j.envint.2024.108912. Epub 2024 Jul 25. PMID: 39116556.
- Schaeffer C., Schummer C., Scholer S., van Nieuwenhuyse A., Pincemaille J. Evaluation of environmental contamination in beeswax products. J Chromatogr B Analyt Technol Biomed Life Sci. 2024 Aug 15;1244:124243. doi: 10.1016/j.jchromb.2024.124243. Epub 2024 Jul 20. PMID: 39068867.
- F Fernández S., Poteser M., Govarts E., Pardo O., Coscollà C., Schettgen T., Vogel N., Weber T., Murawski A., Kolossa-Gehring M., Rüther M., Schmidt P., Namorado S., Van Nieuwenhuyse A., Appenzeller B., Ólafsdóttir K., Halldorsson TI., Haug LS., Thomsen C., Barbone F., Mariuz M., Rosolen V., Rambaud L., Riou M., Göen T., Nübler S., Schäfer M., Zarrabi KHA., Sepai O., Martin LR., Schoeters G., Gilles L., Leander K., Moshammer H., Akesson A., Laguzzi F. Publisher Correction: Determinants of exposure to acrylamide in European children and adults based on urinary biomarkers: results from the "European Human Biomonitoring Initiative" HBM4EU participating studies. Sci Rep. 2024 Jan 29;14(1):2405. doi: 10.1038/s41598-024-52775-0. Erratum for: Sci Rep. 2023 Dec 2;13(1):21291. doi: 10.1038/s41598-023-48738-6. PMID: 38287129; PMCID: PMC10825204.
- Lamon, J. Doyle, A. Paini, R. Moeller, S. Viegas, F. Cubadda, P. Hoet, A. Van Nieuwenhuyse, H. Louro, M Dusinska, K.S. Galea, R. Canham, C. Martins, A. Gama, V. Teófilo, M. Diniz-da-Costa, M. João Silva, C. Ventura, P. Alvito, N. El Yamani, M. Ghosh, R.C. Duca, M. Siccardi, E. Runden-Pran, C. McNamara, P. Price. (2024) Roadmap for action for advancing aggregate exposure to chemicals in the EU. EFSA supporting publication 2024:EN-8971.364pp doi:10.2903/sp.efsa.2024.EN-8971
- Andjelkovic M, Van Overmeire I, Joly L, Poma G, Malarvannan G, Vleminckx C, Malysheva SV, Vanhouche M, Van Loco J, Van Nieuwenhuyse
 A, Covaci A. Persistent organic pollutants in human milk of Belgian mothers: levels, time trend and exposure assessment for nursing infants.
 J Environ Expo Assess 2024;3:23. https://dx.doi.org/10.20517/jeea.2024.22







Legal Medicine

- Cuffaro F., Dahm G., Marson C., Berlemont P., Yegles M., Allar C., Fauchet L., Creta M., Schneider S., (2024) Contamination of a drug consumption room with drugs and potential risks for social health care workers. Harm Reduction Journal 21 (149)
- Oliverio S., Ferger M., Yegles M. (2024) Postmortem concentrations for total blood carbon monoxide (TBCO) as a novel biomarker for carbon monoxide (CO) poisonings. J Anal Toxicol 11 (48): 289-298
- Schaul M., Schortgen Y., Schwark T. (2024) Theoretische Grundlagen von Explosionen und Explosionsverletzungen. Rechtsmedizin 34 (2): 135-144
- Schaul M., Schortgen Y., Schwark T. (2024) Explosionsverletzungen-Tatortaufnahme, Dokumentation und Rekonstruktion. Rechtsmedizin 34 (4): 269-280

FINANCIAL REPORT





ASSETS	2024	2023
FIXED ASSETS		
Intangible assets		
Concessions, patents, licenses, trademarks and similar rights and assets, if they were acquired for valuable consideration	418,667.89	437,629.52
Payments on account and intangible assets under development	97,720.00 516,387.89	28,886.25 466,515.77
Tangible assets		
Land and buildings	81,823,689.35	85,985,367.54
Plant and machinery	5,811,363.16	6,529,780.84
Other fixtures and fittings, tools and equipment	847,057.00	831,875.58
Payments on account and tangible assets in the course	2,640,581.33	996,377.22
of construction	91,122,690.84	94,343,401.18
Total fixed assets	91,639,078.73	94,809,916.95
CURRENT ASSETS		
Stocks		
Raw materials and consumables	3,582,125.26	3,568,200.41
Debtors - Trade debtors		
Becoming due and payable within one year	6,104,381.72	6,073,779.62
Debtors - Other debtors		
Becoming due and payable within one year	27,062,826.19	27,986 899.11
Cash at bank and in hand	22,729,046.92	20,209,928.39
Total current assets	59,326,685.13	57,838,807.53
Prepayments	1,155,324.53	1,286,079.93
Total assets	152,272,783.35	153,934,804.41
CAPITAL, RESERVES	2024	2022
AND LIABILITIES	2024	2023
CAPITAL AND RESERVES		
Profit or loss brought forward	21,819,390.15	14,682,363.11
Profit or loss for the financial year	(12,492,957.65)	7,137,027.04
Capital investment subsidies	87,442,032.09	91,560,887.46
Total capital and reserves	96,768,464.59	113,380,277.61

APITAL, RESERVES ND LIABILITIES	2024	
OVISIONS		
her provisions	3,441,297.42	3,631,894.77
REDITORS		
rade creditors		
coming due and payable within one year	4,720,675.47	4,312,135.09
ther creditors		
authorities	331,529.72	-
ial security authorities	1,587,587.77	1,490,437.84
er creditors becoming due and payable within	41,830,728.77	26,009,333.36
year	,000,, 20., ,	20,007,000.00
tal creditors	48,470,521.73	31,811,906.29
ferred income	3,592,499.61	5,110,725.74
	152,272,783.35	153,934,804.41
ROFIT AND LOSS ACCOUNT	2024	2023
T TURNOVER	2024	2023
ET TURNOVER THER OPERATING INCOME AW MATERIALS AND CONSUMABLES AND	2024 53,726,148.50	2023 49,422,294.18
THER OPERATING INCOME W MATERIALS AND CONSUMABLES AND THER EXTERNAL EXPENSES	2024 53,726,148.50	2023 49,422,294.18
T TURNOVER HER OPERATING INCOME W MATERIALS AND CONSUMABLES AND HER EXTERNAL EXPENSES W materials and consumables	2024 53,726,148.50 39,470,055.09	2023 49,422,294.18 44,651,596.62
T TURNOVER HER OPERATING INCOME W MATERIALS AND CONSUMABLES AND HER EXTERNAL EXPENSES w materials and consumables are external expenses	2024 53,726,148.50 39,470,055.09 (15,480,887.75)	2023 49,422,294.18 44,651,596.62
HER OPERATING INCOME W MATERIALS AND CONSUMABLES AND HER EXTERNAL EXPENSES w materials and consumables her external expenses AFF COSTS	2024 53,726,148.50 39,470,055.09 (15,480,887.75)	2023 49,422,294.18 44,651,596.62
T TURNOVER HER OPERATING INCOME W MATERIALS AND CONSUMABLES AND HER EXTERNAL EXPENSES w materials and consumables her external expenses AFF COSTS ges and salaries	2024 53,726,148.50 39,470,055.09 (15,480,887.75) (24,975,696.79)	2023 49,422,294.18 44,651,596.62 (12,553,506.16) (22,907,907.28)
ET TURNOVER THER OPERATING INCOME AW MATERIALS AND CONSUMABLES AND THER EXTERNAL EXPENSES aw materials and consumables ther external expenses TAFF COSTS ages and salaries ocial security costs clating to pensions	2024 53,726,148.50 39,470,055.09 (15,480,887.75) (24,975,696.79)	2023 49,422,294.18 44,651,596.62 (12,553,506.16) (22,907,907.28)
T TURNOVER HER OPERATING INCOME W MATERIALS AND CONSUMABLES AND HER EXTERNAL EXPENSES w materials and consumables her external expenses AFF COSTS ges and salaries cial security costs	2024 53,726,148.50 39,470,055.09 (15,480,887.75) (24,975,696.79) (31,899,548.69)	2023 49,422,294.18 44,651,596.62 (12,553,506.16) (22,907,907.28) (28,595,224.71)

OTHER OPERATING EXPENSES	(20,998,530.00)	(2,476,861.10)
in respect of current assets	(354,521.39)	-
in respect of formation expenses and of tangible and intangible fixed assets	(8,377,115.24)	(17,255,154.60)

OTHER INTEREST RECEIVABLE AND SIMILAR INCOME

Profit or loss for the financial year	(12 / 92 957 / 5)	7 137 027 04	
Other interests and similar expenses	(3,114.93)	(1,106.27)	
INTEREST PAYABLE AND SIMILAR EXPENSES			
Other interest and similar income	59,677.92	74,147.12	