
Department of Pediatrics

Scientific and research activities together with curative and preventive care, undergraduate teaching and postgraduate education represent one of the basic activities of the Department of Pediatrics. Doctors of the department participate in scientific research projects within CU MED HK and FN HK and cooperate with other departments in the Czech Republic and abroad. The main areas of research of the department include neonatology, paediatric gastroenterology, paediatric endocrinology, paediatric nephrology, but cooperation is also set up within other paediatric specialisations.

Main research topics

- Diabetes mellitus and its impact on child development and health in a broader context
 - D-lactate in pediatric patients on home parenteral nutrition.
 - Composition of the GIT microbiome in preterm neonates in relation to perinatal pathologies
1. **Neonatology**
Composition of the GIT microbiome in preterm neonates in relation to perinatal and postnatal characteristics and its association with hemorrhagic and necrotizing enterocolitis. Project leader [MUDr. Jan Malý, Ph.D.](#)
Vitamin D metabolome and its association with the gut microbiome in a population of immature neonates. Project leader [MUDr. Tomáš Matějka, Ph.D.](#)
 2. **Paediatric gastroenterology**
D-lactate in pediatric patients on home parenteral nutrition.
The project includes microbiome analysis and genetic analysis of D-lactate metabolism. Department of Pediatrics ([MUDr. Jan Melek](#)) in collaboration with the ÚKBD (Alena Tichá, Ph.D.), the Department of Clinical Microbiology ([Mgr. Rudolf Kukla, Ph.D.](#)) and the Department of Medical Genetics (Vladana Skutilová, M.D.).
 3. **Paediatric endocrinology and diabetology**
Current projects are focused on the consequences of diabetes mellitus in the pediatric population: (1) Cognitive function in children with diabetes, especially executive function, (2) Diabetes in pregnancy and its impact on the newborn and further child development, (3) Microcirculation in various conditions associated with diabetes (diabetic ketoacidosis)
 4. **Dětská nefrologie**
Epidemiological and prognostic factors in selected nephropathies and congenital kidney diseases. Project leader: [doc. MUDr. Sylva Skálová, Ph.D.](#)

Cooperation

- Department of Pediatrics, FNM and 2st LF UK in Motol, Prague
- Department of Pediatrics, Faculty of Health Studies, J.E. Purkyně University Ústí nad Labem

International Cooperation

- Prof. E. Lopriore, Leiden University Medical Center
- N. Houben, Leiden University Medical Center v rámci sítě European Rare Kidney Diseases Reference Network (Prof. Franz Schaefer, Heidelberg)

Important achievements

- 2018 Tereza Vitvarová, David Neumann, Radka Šimáková, Jan Kremláček, "Neurophysiological Evidence for a Compensatory Activity during a Simple Oddball Task in Adolescents with Type 1 Diabetes Mellitus", Journal of Diabetes Research, vol. 2018, Article ID 8105407, 9 pages, 2018. <https://doi.org/10.1155/2018/8105407> IF 4,3
- 2023 Krausová V, Neumann D, Kraus J, Dostalová V, Dostal P. Sublingual microcirculation in healthy pediatric population using the sidestream dark-field imaging method. Clin Hemorheol Microcirc. 2023;85(2):163-171. doi: 10.3233/CH-231851. PMID: 37599527. IF 2,1
- 2024 Krausová V, Neumann D, Skvor J, Dostal P. Changes of Sublingual Microcirculation during the Treatment of Severe Diabetic Ketoacidosis. J Clin Med. 2024 Mar 14;13(6):1655. doi: 10.3390/jcm13061655. PMID: 38541881; PMCID: PMC10971367. IF 3,9

The department is engaged in a number of other research projects in which it participates within the Czech Republic and in cooperation with foreign countries. Current projects include research on the vitamin D metabolome and its association with the gut microbiome in the population of immature newborns (MUDr. Tomáš Matějka, Ph.D.) and research on diabetes in pregnancy and its impact on the newborn and further child development (MUDr. Kateřina Krylová, Ph.D.). The department is involved in projects related to rare kidney diseases in the Czech Republic and abroad (doc. MUDr. Sylva Skálová, Ph.D.)