

Study programme: **MOLECULAR AND TRANSLATIONAL MEDICINE**

ANNOTATION

The doctoral study program Molecular and Translational Medicine is focused on understanding the molecular basis of human diseases, diagnostics and therapy. It focuses on the identification and validation of new molecular targets, biomarkers of diseases, innovative therapeutic approaches, health informatics, data analysis and personalized medicine. The field emphasizes the development of scientific and critical thinking of postgraduate students and deepens their theoretical and practical knowledge. Additional information on topics and the study programme is available at <https://imtm.cz/careers/doctoral>.

ADMISSION PROCEDURE 2026/2027

Contact details of the training department:

Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacký University Olomouc, Hněvotínská 5, Olomouc, phone: +420 585 632 081

Dissertation topics of the training department:

1. Natural products with anticancer activity

2 positions in full-time form of study

Supervisor: prof. RNDr. Milan Urban, Ph.D.

2. Axonal transport, miRNA, choroid plaxus, astrocytes in Alzheimer's disease

3 positions in full-time form of study and 3 positions in part-time form of study

Supervisor: Gorazd B. Stokin, MD., Ph.D.

3. Multi-instance learning for prediction of properties of chemical compounds

1 position in full-time form of study

Supervisor: Mgr. Pavlo Polishchuk, Ph.D.

4. Analysis of morphological profiles of compounds

1 position in full-time form of study

Supervisor: Mgr. Pavlo Polishchuk, Ph.D.

5. Automated searching for new hits and structural optimization of compounds

1 position in full-time form of study

Supervisor: Mgr. Pavlo Polishchuk, Ph.D.

6. DNA replication in human pathophysiology

2 positions in full-time form of study

Supervisor: Ing. Pavel Moudrý, Ph.D.

7. **Preclinical development of radiopharmaceuticals for imaging infections and tumors**

2 positions in full-time study and 2 positions in part-time study

Supervisors: doc. PharmDr. Miloš Petřík, Ph.D.; doc. MUDr. Marián Hajdúch, Ph.D.

8. **The role of PD1 and PDL-1 signaling in the immune response against solid tumors**

1 position in full-time study and 1 position in part-time study

Supervisor: prof. Juan Bautista De Sanctis, Ph.D.

9. **Absolute and relative information in metabolomic data of rare diseases**

1 position in full-time study and 1 position in part-time study

Supervisor: prof. RNDr. Tomáš Adam, Ph.D.

10. **Identification of new derivatives targeting precancerous and tumor lesions and study of their mechanisms of action**

2 positions in full-time study

Supervisor: MUDr. Petr Džubák, Ph.D.

11. **Liquid biopsies in experimental and clinical oncology**

2 positions in full-time study

Supervisor: Doc. MUDr. Josef Srovnal, Ph.D.

12. **New prognostic and predictive factors in solid tumors**

2 positions in full-time study

Supervisors: doc. MUDr. Josef Srovnal, Ph.D.; doc. MUDr. Marián Hajdúch, Ph.D.

13. **Molecular mechanisms of cellular response to proteotoxic stress**

1 position in full-time study

Supervisor: Mgr. Zdeněk Škrott, Ph.D.

14. **Identification of tissue dysfunction mediated by senescent cells during aging**

1 position in full-time study

Supervisor: Mgr. Martin Mistrík, Ph.D.

15. **Identification of molecular targets and mechanisms of resistance to anticancer drugs using cell biology and multi-omics methods**

1 position in full-time study

Supervisor: doc. MUDr. Marián Hajdúch, Ph.D.

16. **Anticancer drugs targeting nucleic acid metabolism**

1 position in full-time study

Supervisor: doc. MUDr. Marián Hajdúch, Ph.D.

17. **Bioinformatic processing of big data in clinical and preclinical studies**

2 positions in full-time or part-time study

Supervisors: doc. MUDr. Marián Hajdúch, Ph.D.; RNDr. Petr Pavliš, Ph.D.

18. Research and development of small-molecule drugs

2 positions in full-time study

Supervisor: doc. MUDr. Marián Hajdúch, Ph.D.

19. Diagnostics and treatment of rare diseases

2 positions in full-time study

Supervisors: doc. MUDr. Marián Hajdúch, Ph.D.; doc. MUDr. Josef Srovnal, Ph.D.

20. Artificial intelligence and machine learning tools in personalized medicine

1 position in full-time study and 1 position in part-time study

Supervisor: doc. MUDr. Marián Hajdúch, Ph.D.

Application deadline:

15 May 2026

Date and location of the entrance examination: **3 June 2026 at 10:00 a.m.**

Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacký University Olomouc, Hněvotínská 5, Olomouc, alternatively online

Anticipated maximum number of admitted students:

Full-time form: max. **30** students

Part-time form: max. **10** students

Examination format: oral (onsite or online)

Contents of entrance exam:

- basics of individual fields - molecular and translational medicine, eventually medicinal chemistry, bioinformatics and informatics depending on selected topic
- knowledge of the topic the candidate is applying for
- language skills (especially English)

Evaluation criteria:

The level of general professional knowledge will be evaluated according to the result of the admission procedure and interview, the applicant's aptitude for scientific work, the applicant's previous experience with scientific and professional work (diploma thesis, professional lectures and publications, applicant's scientific activities, motivation, etc.), language skills, preconditions for graduation. Students will be admitted to the study based on the above criteria, capacity of the supervisors and the training facility.

The annual tuition fee for the post-graduate study programme conducted in English is set at EUR 100.