Dace Pjanova PhD

Tumour immunology, melanoma immunotherapy and innate immune activation



Main supervisor | Immunology and Cancer Group

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Current position	Tenured Professor
Organisational unit	Institute of Microbiology and Virology (MVI), Immunology and Cancer Group
KEY-RSU role	Main supervisor
Thematic area	MVI-3 Systemic Immune Responses and the Tumour Microenvironment in Predicting Immunotherapy Outcomes; MVI-4 Overcoming Immune Checkpoint Inhibitor Resistance through Innate Immune Activation.

Host environment

The Institute of Microbiology and Virology (MVI), a structural unit of the Research Centre at Riga Stradiņš University, provides a multidisciplinary and internationally oriented research environment spanning medical microbiology, virology, molecular biology, clinical immunology, and biotechnology. The Immunology and Cancer Group bridges fundamental cancer immunology with clinically relevant research, focusing on the tumour microenvironment, cancer immunotherapy, immune signalling, and melanoma genetics

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Supervisor Overview

Dace Pjanova is a Tenured Professor at the RSU Institute of Microbiology and Virology and leads the Immunology and Cancer Group. As a KEY-RSU main supervisor, she will supervise two postdoctoral researchers working on tumour immunology, with opportunities focused on immunotherapy response and resistance and on strategies combining immune-checkpoint blockade with innate immune activation.

Research Expertise

Her research lies at the intersection of tumour immunology, melanoma biology, cancer genomics, cancer immunotherapy and treatment resistance. She combines molecular and cellular oncology with immune profiling, precision oncology and biomarker-oriented translational research. Within KEY-RSU, this expertise supports research into systemic and tumour-local immune mechanisms underlying response or resistance to cancer immunotherapy. Methodological strengths include multiparametric flow cytometry and cell sorting, tumour-immune co-culture systems, molecular profiling, transcriptomics and single-cell approaches, microscopy and integrative bioinformatics. A complementary strand of her research investigates innate immune activation, including the immunomodulatory potential of bacteriophage-derived double-stranded RNA, creating opportunities to connect mechanistic tumour and immune biology with clinically relevant questions and rational combination immunotherapy strategies.

Research Opportunities

A central research question is why only some patients achieve durable benefit from cancer immunotherapy and how systemic immune states interact with the tumour microenvironment in determining treatment response and resistance. Potential projects may integrate blood- and tumour-derived immune profiles, cytokine signalling, IFN-related signatures, transcriptomics, single-cell analysis and genomic information to investigate biologically supported mechanisms and candidate biomarkers. A complementary direction explores whether PD-1/PD-L1 checkpoint blockade can be enhanced through innate immune activation, including approaches involving bacteriophage-derived double-stranded RNA. Postdoctoral researchers may develop mechanistic, computational or functional approaches to immune-cell recruitment, activation and cytotoxicity in tumour-immune systems and advanced experimental models. These themes define research areas rather than predetermined projects: incoming postdoctoral researchers are expected to formulate original questions and develop their own scientific direction within the available environment.

Research Environment and Collaboration

The postdoctoral researcher will join the Immunology and Cancer Group at MVI, an interdisciplinary environment combining experimental tumour immunology, molecular oncology, cancer genomics and translational research. The group works closely with clinical oncology collaborators, allowing scientifically appropriate projects to connect laboratory research with clinically relevant questions, samples and data, subject to the necessary approvals and access conditions. International collaboration is supported through projects including DICE - Epigenomic Regulation of Cancer Immunity through Dietary Intervention, in which Pjanova is a partner principal investigator and team leader, and through canSERV-supported genomic research in melanoma. Existing collaborations extend to researchers in France, Lithuania, Ukraine, Italy and other countries. The environment provides opportunities for joint analyses, collaborative publications, international meetings, research visits and development of future proposals. Complementary expertise can also be accessed in cancer epigenomics, computational analysis and preclinical research.

Supervision and Researcher Development

Supervision begins with structured one-to-one work to refine the postdoctoral researcher's own scientific question, hypotheses, methodology, milestones and risk-mitigation strategy. Meetings are expected to be relatively frequent during project establishment and to become increasingly strategic as the postdoctoral researcher develops greater independence. Experimental and analytical choices are discussed openly, with timely, evidence-based feedback and clear documentation of agreed actions. The postdoctoral researcher is expected to participate actively in group and project meetings, scientific seminars and methodological discussions, while taking responsibility for defined research activities and progressively leading their own scientific work. Pjanova has supervised three completed and three ongoing doctoral researchers and has mentored postdoctoral and early-career researchers working in melanoma genetics, clinical genomics, therapy resistance, cancer immunology, immune profiling and immunomodulatory research. Where appropriate, postdoctoral researchers may also co-supervise students or junior researchers. The intended progression is from structured scientific support towards increasing intellectual and operational independence.

Career Development Support

Career development is connected directly to the postdoctoral researcher's scientific progression. Postdoctoral researchers will be supported in research-project design and management, publication planning, grant and fellowship proposal development, conference participation and international networking. As the project matures, the postdoctoral researcher will be encouraged to define an independent scientific niche, generate preliminary data for future proposals and take increasing leadership of scientific initiatives. Participation in collaborative projects can provide experience in project coordination, multi-institutional research and international teamwork, while opportunities to supervise junior researchers can strengthen leadership and mentoring skills. The wider KEY-RSU programme will also support relevant competencies in Open Science, research data management and responsible research practice. The intended outcome is a postdoctoral researcher equipped to develop and lead an independent research agenda.

Who May Particularly Thrive in This Environment

This environment may particularly suit postdoctoral researchers who want to connect mechanistic tumour or immune biology with translational questions in immunotherapy, treatment resistance, biomarker discovery or precision oncology. Experience in immunology, cancer biology, molecular or cell biology, flow cytometry, transcriptomics, single-cell methods, bioinformatics or functional experimental systems would be valuable, but applicants are not expected to master all these areas. Scientific curiosity, rigorous working practices, willingness to learn new approaches and readiness to take increasing ownership of an original project are particularly important.

Selected Contributions

Adjuvant immunotherapy in the modern management of resectable melanoma: current status and outlook to 2028

Donia M et al., including Pjanova D. ESMO Open (2025). DOI 10.1016/j.esmoop.2025.104295. Contribution: Co-author contributing melanoma and immunotherapy expertise within an international collaborative group. KEY-RSU relevance: Directly relevant to MVI-3 and demonstrates the ability to connect experimental and biomarker research with clinically relevant questions in melanoma immunotherapy.

Resistance of BRAFV600E-mutant melanoma to Vemurafenib: a senescence-induced swing from differentiation to blastulation followed by proliferation

Rumnieks F et al., including Pjanova D. Cancer Letters (2026). DOI 10.1016/j.canlet.2026.218430. Contribution: Co-author contributing melanoma and cancer-treatment-resistance expertise. KEY-RSU relevance: Demonstrates mechanistic research on therapy resistance in melanoma and supports interdisciplinary work linking cell biology, molecular profiling and translational oncology.

Immunomodulatory properties of bacteriophage derived dsRNA of different size and their use as anticancer vaccine adjuvants

Dobrovolskienė N et al., including Pjanova D. Vaccine 42(3), 512-521 (2024). DOI 10.1016/j.vaccine.2023.12.071. Contribution: Co-author and international collaborator contributing expertise in dsRNA-based immune modulation. KEY-RSU relevance: Demonstrates the translational potential of innate immune activation in cancer and directly supports the MVI-4 research direction.

Bacteriophage-Derived Double-Stranded RNA Exerts Anti-SARS-CoV-2 Activity In Vitro and in Golden Syrian Hamsters In Vivo

Vaivode K et al., including Pjanova D. Pharmaceuticals 15(9), 1053 (2022). DOI 10.3390/ph15091053. Contribution: Senior co-author contributing expertise in bacteriophage-derived dsRNA, immune modulation and translational experimental design. KEY-RSU relevance: Demonstrates experience evaluating innate immune activators across in vitro and in vivo models, relevant to mechanistic immunology research under MVI-4.

Supervisory Availability

Dace Pjanova expects to provide regular scientific supervision throughout the anticipated five-year KEY-RSU employment period. Complementary co-supervision will be provided by Dr. Zaiga Nora-Krūkle, director of MVI, who will support the postdoctoral researcher's integration into the Institute and monitor the implementation of their Career Development Plan. Additional expertise may be involved according to the specific needs of the research project.