RESEARCH TOPIC DASMEN1
Investigating Platelet Expression Heterogeneity and Platelet-Leukocyte Interactions using Multiomics Approaches and Big Data in Biomedicine
Curriculum DASMEN Standard

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Abstract
Platelets play a critical role in thrombosis, hemostasis, and inflammation, and dysfunction can contribute to their pathogenesis in various diseases. Platelet-leukocyte interactions have emerged as key players in inflammation, immune response, and thrombotic disorders. This project aims to develop computational methods to analyze multiomics data to identify the molecular mechanisms underlying platelet-leukocyte interactions and platelet expression heterogeneity and investigate their clinical relevance in various diseases. The candidate will analyze large multiomics datasets from platelets and leukocytes using bioinformatic approaches and validate the results in collaboration with experimental researchers using in vitro and ex-vivo assays. This project will generate novel insights into platelet-leukocyte interactions, platelet expression heterogeneity, and their clinical relevance in various diseases. To facilitate the research, the successful candidate will spend up to 18 months at an experimental bioinformatic unit in Germany. The candidate should have established programming skills (Python, R), experience with multiomics data analysis, and a solid understanding of statistics and machine learning. Experience with platelet biology, leukocyte biology, or related fields is a plus. Excellent knowledge of English and strong communication skills, both oral and written, are essential.

Main technical approaches

- Bioinformatics

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- Python, R

Scientific references

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Role of Reticulated Platelets in Cardiovascular Disease D Bongiovanni, J Han, M Klug, K Kirmes, G Viggiani, M von Scheidt, N Schreiner, G Condorelli, KL Laugwitz and I Bernlochner ATVB, 24 Mar 2022, Ahead of print, doi: 10.1161/ATVBAHA.121.316244

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Type of contract

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Borsa di studio pari a € 21.000 annui lordi erogata da Istituto Clinico Humanitas. Importo soggetto a tassazione IRPEF ed esente da contribuzione previdenziale.

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