



RESEARCH TOPIC DASMEN2

Development of computational approaches in Flow Cytometry and Next Generation Sequencing to investigate on the pathogenesis of unprovoked venous thromboembolism

Curriculum DASMEN Standard

Laboratory name and address

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Abstract

Venous thromboembolism (VTE) is a multifactorial disease that is defined unprovoked (uVTE) in 50% of cases. In this context, aberrancies of the endothelial compartment deserve to be explored, since endothelial dysfunctions (EDs)/injuries are known to trigger VTE. Endothelial colony-forming cells (ECFCs) are circulating endothelial progenitor cells allowing non-invasive functional assessments of the endothelial compartment.

This project of translational medicine will investigate whether ED and/or endothelial hyperresponsiveness to proinflammatory stimuli and aberrant immune responses may play a role in the pathogenesis of uVTE through the characterization of ECFCs obtained from uVTE patients in order to possibly identify the cellular and molecular mechanisms involved in ED in uVTE. In particular, we will develop bioinformatic and computational synergic approaches in an unbiased analyses of all pathogenic factors from our experiments of Flow Cytometry and Next Generation Sequencing

Main technical approaches

The candidate must hold a bachelor degree with a major in mathematics or informatics or computational analyses (Physic, Mathematics or Electronic Engineering). It is also requested a proved experience in handling bioinformatics projects including Flow Cytometry and Next Generation Sequencing. An experience in handling clinical and experimental datasets is welcome.

Scientific references

1) Colombo E, Calcaterra F, Cappelletti M, Mavilio D. #*, Della Bella S.

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2) Calcaterra F, Brambilla L., Colombo E., Tournalaki A., Veraldi S., Carezza C., Mavilio D # and Della Bella S. #*. Increased frequency and vasculogenic potential of endothelial colony-forming cells in patients with Kaposi's sarcoma.

Journal of Investigative Dermatology, (2017) 137(7), 1533-1540. Impact Factor: 6.448

3) Ungaro F., Tacconi C., Massimino L., Corsetto P.A., Correale C., Fonteyne P., Piontini, A., Garzarelli V., Calcaterra F., Della Bella S., Spinelli A., Carvello M., Rizzo A.M., Vetrano S., Petti L., Fiorino G., Furfaro F., Mavilio D., et al.

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4) Della Bella S. #*, Calcaterra F.#, Bacci M., Carezza C., Pandolfo C., Ferrazzi P., Uva P., Pagani M., Lodigiani C.# and Mavilio D.#*

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5) Fontana D, Mauri M, Renzo R, Docci M, Crespiatico I, Røst LM, Jang M, Niro A, D'Aliberti D, Massimino L, Bertagna M, Zambrotta G, Bossi M, Citterio S, Crescenzi B, Fanelli F, Cassina V, Corti R, Salerno D, Nardo L, Chinello C, Mantegazza F, Mecucci C, Magni F, Cavaletti G, Bruheim P, Rea D, Larsen S, Gambacorti-Passerini C, Piazza R. *

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Impact Factor: 12.121

* Corresponding Author / # Shared Authorship

Type of contract

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