Tatiana Smirnova obtained her Master of Science and PhD degree in Biomedical Research from the Dept. of Anatomy and Structural Biology at the Albert Einstein College of Medicine (2010, New York, USA) in the laboratory of Pr. J.E. Segall. Dr Smirnova investigated the complex interactions between tumor cells and tumor-promoting macrophages (TAMs) driving invasion and metastasis of breast cancer and HNSCC cells *in vivo*. She and her colleagues delineated the roles of CSF1R, CXCR4, and EGF receptors (ErbB3, Her2/Neu, EGFR) and their ligands in this cross-talk. Using intravital multiphoton imaging (IVI-MP), she confirmed that TAMs are required for *in vivo* invasion and metastasis using ErbB3/HER3 and PI3-kinase signaling pathways. Her postdoctoral studies in Basel, Switzerland, at the Friedrich Miescher Institute for Biomedical Research (FMI) with Pr. N.E. Hynes, were expanded into the extracellular tumor milieu, controlled by the secreted serine protease inhibitor serpinE2. Using aggressive breast cancer models, she showed, that blocking serpinE2 modulates protumoral macrophages, creates a dense collagen tumor capsule, and decreases metastatic dissemination. In parallel to her postdoctoral work, Tatiana managed the multiphoton intravital imaging microscope facility for the department of Cancer and Cell Signaling (FMI, Basel) until 2016. In this role, Tatiana maintained the microscope, trained and advised users, and enjoyed being an imaging collaborator in other breast cancer and glioblastoma projects. In 2016, Dr Smirnova started working as a research fellow at the CHUV in the service of hematology, DMLP, with Pr. O. Spertini, and now with Pr. H. Auner (2023). Her current research focus is on "reprogramming" protumoral macrophages and targeting the microenvironment in acute myeloid leukemia and other hematological cancers, to overcome survival and resistance mechanisms of malignant cells.

SCIENTIFIC PUBLICATIONS

CSF1R Inhibition Combined with GM-CSF Reprograms Macrophages and Disrupts Protumoral Interplays with AML Cells. Smirnova T, Spertini C, Spertini O. *Cancers*. 2021 Oct 21;13(21):5289. DOI: 10.3390/cancers13215289

Acute Myeloid and Lymphoblastic Leukemia Cell Interactions with Endothelial Selectins: Critical Role of PSGL-1, CD44 and CD43. C. Spertini, B. Baïsse, M. Bellone, M. Gikic, T. Smirnova and Olivier Spertini. *Cancers.* Aug 2019 DOI: 10.3390/cancers11091253

The function of P-selectin glycoprotein ligand-1 is conserved from ancestral fishes to mammals. B. Baïsse, C. Spertini, F. Galisson, T. Smirnova, and Olivier Spertini. *J Leukoc Biol.* Jul 2019 DOI: 10.1002/JLB.2A0818-327RR

SYK inhibition blocks proliferation and migration of glioma cells, and modifies the tumor microenvironment. – Moncayo G, Grzmil M, Smirnova T, Zmarz P, Huber RM, Hynx D, Hess D, Hotz HR, Kohler H, Wang Y, J Seebacher, Hynes N, Keller G, Frank S, Merlo A, Hemmings BA, **-** *Neuro-Oncology*, Feb 1 2018 DOI: 10.1093/neuonc/noy008

*Serpin E2 promotes breast cancer metastasis by remodeling the tumor matrix and polarizing tumor associated macrophages***. –** Smirnova T, Bonapace L, MacDonald G, Kondo S, Wyckoff J, Ebersbach H, Fayard B, Doelemeyer A, MM Coissieux, Heideman MR, Bentires-Alj M, Hynes NE, *Oncotarget*, Oct 26 2016 DOI: 10.18632/oncotarget.12927

Memo is a copper-dependent redox protein with an essential role in migration and metastasis. MacDonald G*, Nalvarte I*, Smirnova T, Vecchi M, Aceto N, Doelemeyer A, Frei A, Lienhard S, Wyckoff J, Hess D, Seebacher J,

Keusch JJ, Gut H, Salaun D, Mazzarol G, Disalvatore D, Bentires-Alj M, Di Fiore PP, Badache A, Hynes NE. - *Science Signaling.* 2014. DOI: 10.1126/scisignal.2004870

Contribution of CXCL12 secretion to invasion of breast cancer cells. Smirnova T*, Boimel PJ*, Zhou ZN, Wyckoff J, Park H, Coniglio SJ, Qian BZ, Stanley ER, Cox D, Pollard JW, Muller WJ, Condeelis J, Segall JE. *Breast Cancer Research*. 2012 DOI: 10.1186/bcr3108

The 14-3-3σ tumor suppressor has multiple functions in ErbB2-induced breast cancer. Hynes NE, Smirnova T. Mini-Highlight Review. *Cancer Discovery*. 2012. DOI: 10.1158/2159-8290.CD-11-0317

Phosphoinositide 3-kinase signaling is critical for ErbB3-driven breast cancer cell motility and metastasis. Smirnova T, Zhou ZN, Flinn RJ, Wyckoff J, Boimel PJ, Pozzuto M, Coniglio SJ, Backer JM, Bresnick AR, Condeelis JS, Hynes NE, Segall JE**.** *Oncogene*. 2012. DOI: 10.1038/onc.2011.275

p21CIP1 mediates reciprocal switching between proliferation and invasion during metastasis. Qian X, Hulit J, Suyama K, Eugenin EA, Belbin TJ, Loudig O, Smirnova T, Zhou ZN, Segall J, Locker J, Phillips GR, Norton L, Hazan RB. *Oncogene.* 2012. DOI: 10.1038/onc.2012.249

In vivo invasion of head and neck squamous cell carcinoma cells does not require macrophages. Smirnova T*, Adomako A*, Locker J, Van Rooijen N, Prystowsky MB, Segall JE. *Am J Pathol*. 2011 Jun;178(6):2857-65. DOI: 10.1016/j.ajpath.2011.02.030

Apoptosis inhibitor ARC promotes breast tumorigenesis, metastasis, and chemoresistance. Medina-Ramirez CM, Goswami S, Smirnova T, Bamira D, Benson B, Ferrick N, Segall J, Pollard JW, Kitsis RN. *Cancer Research*. 2011 Dec 15;71(24):7705-15. DOI: 10.1158/0008-5472.CAN-11-2192

The EGF/CSF-1 paracrine invasion loop can be triggered by heregulin beta1 and CXCL12. Smirnova T*, Hernandez L*, Kedrin D, Wyckoff J, Zhu L, Stanley ER, Cox D, Muller WJ, Pollard JW, Van Rooijen N, Segall JE. *Cancer Res*. 2009 Apr 1;69(7):3221-7. DOI: 10.1158/0008-5472.CAN-08-2871

In vivo assay for tumor cell invasion. Smirnova T*, Hernandez L*, Wyckoff J, Condeelis J, Segall JE. *Methods Mol Biol*. 2009;571:227-38. DOI: 10.1007/978-1-60761-198-1_15

Amoeboid chemotaxis: future challenges and opportunities. *Cell Adh Migr*. 2007 Oct-Dec;1(4):165-70. Smirnova T, Segall JE. Review. DOI: 10.4161/cam.1.4.5305