

# Monocyte fate during conformal radiotherapy controls therapeutic outcome



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### *Abstract*

Tumor infiltrating monocytes acquire different fates that distinctly impact cancer treatment, i.e., immunoregulatory tumor associated macrophages (TAMs), monocyte-derived dendritic cells (moDCs), or immunostimulatory activated monocytes. In the last years, we have applied high-dimensional analysis and fate tracing models to systematically follow the fate of monocytes after radiotherapy (RT), which is used to treat over 50% of all cancer patients. Here, I will discuss the identity and microenvironmental cues that trigger the accumulation of immunostimulatory and immunoregulatory monocyte-derived cells during RT, and the capacity of these cells to modulate treatment efficacy. I will also argue in favor of embracing

clinically-relevant technologies for the irradiation of tumors in small animals. Altogether, our results unravel the function of monocyte progeny and identify new therapeutic targets to use in combination with RT.

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### *Biography*

Juliana Idoyaga, PhD is an Associate Professor in the Departments of Pharmacology and Molecular Biology at the University of California, San Diego, where she leads the Laboratory of Dendritic Cell Immunobiology. The goal of her research program is to develop the next generation of therapeutic approaches through a mechanistic understanding of dendritic cells and other mononuclear phagocytes. Dr. Idoyaga received her BSc in Biology and Immunology from the Buenos Aires University in Argentina. She completed her PhD in Immunology and Biomedical Sciences with honors at the National Autonomous University of Mexico. She performed her postdoctoral training in the laboratory of Cellular Physiology and Immunology at The Rockefeller University under the mentorship of the late Nobel Laureate Dr. Ralph Steinman. Dr. Idoyaga has received various awards including the NIH Pathway to Independence Award, the NIH Director's New Innovator Award, Baxter Foundation Faculty Scholar Award, and The Gabilan Faculty Fellow Award.