Stereoselective Synthesis and Biological Evaluations of Pro-resolution and Radiotracer Agents

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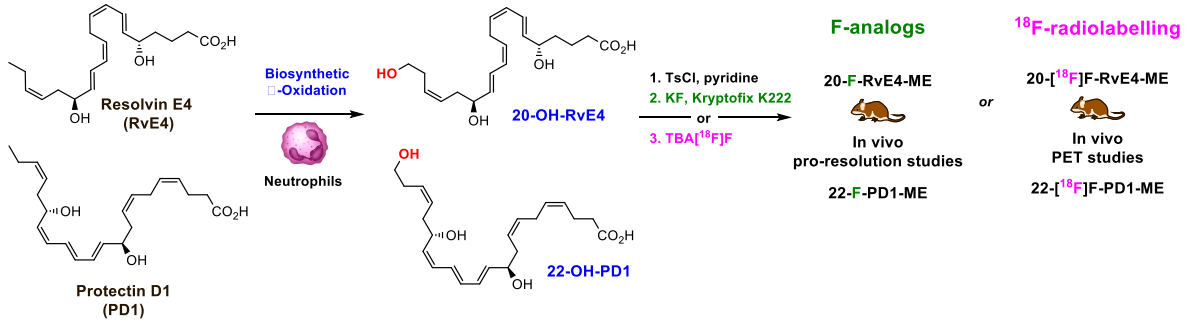
Specialized pro-resolving mediators (SPMs), biosynthesized from n-3 polyunsaturated fatty acids, play a crucial role in promoting the return of inflamed tissues to homeostasis during the resolution phase of acute inflammation. These lipid mediators exhibit a broad spectrum of anti-inflammatory and pro-resolving bioactivities, making them promising lead compounds in the emerging field of resolution pharmacology.[1,2] Radiolabeling SPMs and studying them using positron emission tomography (PET) offers a powerful strategy to gain new insights into their in vivo biodistribution, pharmacokinetics, and target tissue engagement. This approach may ultimately enhance our understanding of their mechanisms of action and therapeutic potential in treating inflammatory diseases.

Synthesis and biological evaluations of novel pro-resolution and radiotracer agents, derived from the two SPMs protectin D1 and resolvin E4, will be presented.[3]



References:
1. Serhan, C. N. *Nature* 2014, *510*, 92.
2. Dalli J, Serhan C. N. *Br. J. Pharmacol*. 2019, 176, 1024.
3. (a) Reinertsen, A. Libreros, S. Nshimiyimana, R. Serhan, C. N. Hansen, T. V. *ACS Pharmacol. Transl. Sci.* 2023, *6*, 1898; (b) Tungen, J. E., Aursnes, M., Ramon, S., Colas, R. A., Serhan, C. N., Olberg, D. E., Nuruddin, S., Willoch, F., Hansen, T.V. *Org. Biomol. Chem.* 2018, *16*, 6818.