Pharmacology Section's research group
University of Perugia (UNIPG)

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Área: Ciências da Vida
Linhas de Pesquisa: Plant-derived bioactive compounds in inflammation and osteoclastogenesis; Tolerogenic enzyme indoleamine 2,3-dioxygenase 1 (IDO1); Immune regulation in cancer and autoimmune diseases; Tryptophan metabolism

Breve descrição das atividades de pesquisa

The Pharmacology Section's research group carries on multiple different research activities including cellular and molecular mechanisms of immunogenic/tolerogenic responses in mice and humans, regulation of tryptophan metabolism in cancer and autoimmune diseases, human tumor biomarkers, effects of plant-derived bioactive compounds in the regulation of inflammation and osteoclastogenesis, oxidative stress molecules in bone-damaging diseases. In particular, the involvement of the tryptophan-degrading tolerogenic enzyme indoleamine 2,3-dioxygenase 1 (IDO1) in autoimmune diseases (e.g., type-1 diabetes, multiple sclerosis, inflammatory bowel disease, etc.) and cancer progression has been extensively studied for more than twenty years. More recently, plant-derived bioactive extracts have been investigated for their putative ability to control the hyperactive inflammatory and osteoclastogenic processes in bone-damaging diseases.

Impacto das pesquisas desenvolvidas para a sociedade e ciência
Pharmacology Section's researchers study specific molecular and cellular mechanisms of immunogenic and/or tolerogenic responses whose dysregulation can condition human diseases' onset and/or progression. Through the studies conducted according to the ongoing scientific projects, different putative drug targets can be identified and further investigated in preclinical and clinical trials. For example, the tolerogenic enzyme IDO1 is a relevant target for molecules either enhancing its activity—which can be studied as potential drugs against autoimmune diseases—, or inducing its degradation, which can be tested as anti-tumor agents. Furthermore, plant-derived extract components targeting important key mediators of inflammation and osteoclastogenic process are investigated as useful anti-arthritic and bone-loss-preventing health products. These studies are part of the complex and long process allowing the setting and optimization of immunotherapeutic agents intended for the treatment of human pathologies and therefore capable of improving the population's health conditions.