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International
Pharma Conference and Expo
May 2-4, 2018 Rome, Italy

COXs Inhibition Role in Multiple Myeloma

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Multiple Myeloma (MM) is an incurable malignant disease of plasma cells. PGE_2 and other prostaglandins (PGs), synthesized by cyclooxygenase (COX)-mediated arachidonic acid transformation, are crucial mediators of inflammation and angiogenesis, and support the growth of several tumors. Two COX isoforms have been identified, COX-1 and COX-2. Despite considerable data concerning COX expression in solid tumors are available, their role in hematologic malignancies and in MM has been little investigated. Non-steroidal anti-inflammatory drugs (NSAIDs), mainly acting as COX inhibitors, have shown to be immunotherapeutic agents in several malignancies, including hematological tumors and MM. Some studies proven the usefulness, in the treatment of MM, of COX inhibitors like indomethacin, ibuprofen, NS-398, celecoxib endowed with a different grade of selectivity towards the inhibition of the two COX isoforms.

The pharmaceutic effect of SC-560, Mofezolac, as selective COX-1 inhibitors, Celecoxib, as a selective COX-2 inhibitor, and Aspirin, Ibuprofen with a different grade of selectivity towards COX isoforms, have been evaluated by us on cellular COX status (protein expression, and enzymatic activity) of widely used *h*MM cell lines (i.e., U937, RPMI-8226, HPC, ARH77).

COX-1 and COX-2 role in MM active disease, as well as the usefulness of their selective or non-selective inhibitors to be used as therapeutic agents to strength the action of the clinically used anticancer drugs (i.e., dexamethasone, bortezomib and thalidomide) will be presented.The work here presented is financially supported by First AIRC Grant-MFAG2015 (Project Id. 17566).

Biography:

Dr. Maria Laura Pati graduated cum laude in Medicinal Chemistry at the University of Bari (Italy). PhD at the University of Bari (Italy). One year as Visiting Researcher at Washington University in St. Louis (USA) working on the *in vitro* and *in vivo* efficacy of novel molecules for resistant tumors treatment. One month as Visiting Researcher at University of Vienna where she gained expertise on confocal microscopy analysis. Currently, she is granted by First AIRC Grant-MFAG2015 (Project Id. 17566) for the project “COX inhibitors in conjunction with chemotherapy to target multiple myeloma active disease”.