CO-ORGANIZED EVENT
International Conference on
Toxicology and Clinical Pharmacology
&
2nd International Conference on
Generic Drugs and Biosimilars
December 14-16, 2017 Rome, Italy

Genoveffa Nuzzo et al., Clin Exp Pharmacol 2017, 7:6(Suppl)
DOI: 10.4172/2161-1459-C1-025

Bioassay-guided fractionation of marine extracts to drug discovery: Methods, applications and last results

Genoveffa Nuzzo[1], Carmela Gallo[1], Clementina Sansone[2], Emiliano Manzo[1], Adrianna Ianora[2] and **Angelo Fontana[1]**
[1]Institute of Biomolecular Chemistry-CNR, Italy
[2]Stazione Zoologica Anton Dohrn, Italy

Marine Natural Products (MNPs) represent a source of inspiration in many areas of biomedical science, expecially in the discovery of compounds with pharmaceutical interest. The number of molecules for drug development has been steadily increasing. Identification of bioactive chemicals is a complex task that requires multidisciplinary interactions. Recently, we have developed and validated an improved SPE-based method based on PS-DVB support to fractionate marine natural extracts in order to obtain in one step the desalting and a rough but predictable separation of the main major chemical classes, allowing recovery of minor components, the activity of which may be masked in the raw extract, and the construction of a "peak librarie". The platform was born within a discovery programs for identification of immuno-stimulatory and anti-infective natural products. The biological analysis of a relative small number of samples (about 250 among extracts and SPE-fractions) give 40% of positive hits with the interesting result that 50% of the activity was detectable only after extract fractionation. The method is routinely used in our laboratory with the aim at increasing the librarie of enriched fractions ready to test which can be rapidly characterized by spectroscopic and spectrometric methods, as well as evaluated by HTS.

Recent Publications

1. Cutignano A, Nuzzo G, D'Angelo D, Borbone E, Fusco A, Fontana A Mycalol (2013) A natural lipid with promising cytotoxic properties against human anaplastic thyroid carcinoma cells. Angew. Chem. Int. Ed. 52(35):9256-9260.
2. Nuzzo G, Cutignano A, Sardo A, Fontana A (2014) Antifungal amphidinol 18 and its 7-sulfate derivative from the marine dinoflagellate Amphidinium carterae. J. Nat. Prod. 77(6):1524-1527.
3. Cutignano A, Nuzzo G, Ianora A, Luongo E, Romano G et al. (2015) Development and application of a novel SPE-method for bioassay-guided fractionation of marine extracts. Mar. Drugs. 13(9):5736-5749.
4. Nuzzo G, Gomes B A, Luongo E, Torres M C M, Santos E A (2016) Dinoflagellate-Related Amphidinolides from the Brazilian Octocoral Stragulum bicolor. 79(7):1881-1885. J. Nat. Prod.
5. Cutignano A, Seetharamsingh B, D'Angelo D, Nuzzo G, Khairnar P V et al. (2017) Identification and synthesis of mycalol analogues with improved potency against anaplastic thyroid carcinoma cell lines. J. Nat. Prod. 80(4):1125-1133.

Biography

Genoveffa Nuzzo has completed her PhD in Pharmaceutical Science at the University of Salerno at the age of 26 years. She is a young researcher of the Bio-Organic Chemistry Unit of the Institute of Biomolecular Chemistry of the CNR.

nuzzo.genoveffa@icb.cnr.it