

Prof. Anwar Rayan

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- Bioinformatics (modeling of GPCRs and docking)
- Chemoinformatics (indexing chemicals for their bioactivity using ISE and ILE algorithms)
- Multiple Component Reactions (chemical synthesis and design of targeted focused libraries)
- PNA-based antisense molecules
- PNA-based antigene molecules
- Incorporating *in-silico* methods for fast isolation and identification of bioactive natural products



DDI lab conducts research on various topics

- Miran Aswad, Mahmoud Rayan, Saleh Abu-Lafi, Mizied Falah, Jamal Raiyn, Ziyad Abdallah, **Anwar Rayan (2017)**. "Nature is the best source of anti-inflammatory drugs: Indexing natural products for their anti-inflammatory bioactivity". **Inflammation Research** Journal
- Zeidan, M., M. Rayan, N. Zeidan, M. Falah and **A. Rayan (2017)**. "Indexing Natural Products for Their Potential Anti-Diabetic Activity: Filtering and Mapping Discriminative Physicochemical Properties." **Molecules** 2017 Sep 17; 22(9).
- A. Frank, S. Abu-Lafi, A. Adawi, S. Schwed, H. Stark, **A. Rayan. (2017)**. Medicinal plants extracts target the histamine H4 receptor: *Curcuma longa* in the treatment of inflammation. **Inflamm. Res.** 66: 923–929.
- Tomas Kacergius, Saleh Abu-Lafi, Agne Kirkliauskiene, Vika Makarevic, Azmi Adawi, Mahmoud Rayan, Mutaz Qutob, Rimantas Stukas, Algirdas Utkus, Mouhammad Zeidan, **Anwar Rayan. (2017)**. Inhibitory capacity of *Rhus coriaria* L. extract and its major component methyl gallate on *Streptococcus mutans* biofilm formation by Optical Profilometry: potential applications for oral health. **Molecular Medicine Reports**. 16: 949-956.
- Matteo Pappalardo, Mahmoud Rayan, Saleh Abu-Lafi, Martha E. Leonardi, Danilo Milardi, Salvatore Guccione, and **Anwar Rayan (2017)**. Homology-based modeling of rhodopsin-like family members in the inactive state: structural analysis and deduction of tips for modeling and optimization. **Molecular Informatics**. 2017 Apr 4.
- Nir Shahaf, Matteo Pappalardo, Livia Basile, Salvatore Guccione, and **Anwar Rayan (2016)**. How to choose the suitable template for homology modeling of GPCRs: 5-HT7 receptor as a test case. **Molecular Informatics**. 35 (8-9): 414-423.
- Matteo Pappalardo, Nir Shachaf, Livia Basile, Danilo Milardi, Mouhammed Zeidan, Jamal Raiyn, Salvatore Guccione and **Anwar Rayan. (2014)**. Sequential application of ligand and structure based modeling approaches to index chemicals for their hH₄R Antagonism. **PLoS ONE** 9(10): e109340.
- Caroline Godfrey, Lourdes R Desviat, BårdSmedsrød, France Piétri-Rouxel, Michela A. Denti, Petra Disterer, Stéphanie Lorain, Gisela Nogales-Gadea, Valentina Sardone, **Rayan Anwar**, Samir El Andaloussi, Taavi Lehto, Bernard Khoo, Camilla Brolin, Willeke M.C. van Roon-Mom, Aurélie Goyenvallé, Annemieke Aartsma-Rus, Virginia Arechavala-Gomez (2017). Delivery is key: lessons learnt from developing splice switching antisense therapies. **EMBO Molecular Medicine**. Early view DOI: 10.15252/emmm.201607199.