

Translational research: molecular diagnostics and therapeutics

Research team:

Mariarita Brancaccio (Post-doc)

Cristina Mennitti (Trainee in clinical pathology and biochemistry)

1. Antimicrobial peptides play a key role in many biological and physiological functions of living organisms and are an attractive starting point for the development of novel drugs. Beta defensins are small antimicrobial peptides that are part of the innate immune system and dynamically involved in several biological activities, with a crucial role in infection and inflammation, acting directly against infectious pathogens (bacteria, viruses, fungi).

The aim of the project is to design and characterize new molecules that can enhance the activity of defensins to obtain a new weapon to combat infectious diseases and antibiotic resistance.

2. Physical exercise, training, and competitions are known to induce metabolic adaptations, particularly in the serum concentrations of numerous biochemical parameters. These modifications reflect the changes that occur in the body in response to the intensity and duration of training exercises, as well as the specific stress of certain muscle groups during these exercises. These adaptations translate into alterations of specific parameters in terms of concentration and activity. Therefore, their identification could represent a new method of clinical evaluation. We aimed to shed light on the biochemical, serological, and hematological parameter changes following exercise, monitoring the health status and sports performance in professional athletes and monitoring the role of physical activity in several diseases.

1. [Design and activity of a cyclic mini-beta-defensin analog: a novel antimicrobial tool.](#)

Scudiero O, Nigro E, Cantisani M, Colavita I, Leone M, Mercurio FA, Galdiero M, Pessi A, Daniele A, Salvatore F, Galdiero S. *Int J Nanomedicine*. 2015 Oct 15;10:6523-39. doi: 10.2147/IJN.S89610. eCollection 2015. PMID: 26508857

2. [HNP-1 and HBD-1 as Biomarkers for the Immune Systems of Elite Basketball Athletes.](#)

Pero R, Brancaccio M, Mennitti C, Gentile L, Franco A, Laneri S, De Biasi MG, Pagliuca C, Colicchio R, Salvatore P, D'Alicandro G, Terracciano D, Cennamo M, La Civita E, Liotti A, Mazzaccara C, Frisso G, Lombardo B, Scudiero O. *Antibiotics (Basel)*. 2020 Jun 7;9(6):306. doi: 10.3390/antibiotics9060306. PMID: 32517339

3. [Childhood obesity: an overview of laboratory medicine, exercise and microbiome.](#)

Scudiero O, Pero R, Ranieri A, Terracciano D, Fimiani F, Cesaro A, Gentile L, Leggiero E, Laneri S, Moscarella E, Mazzaccara C, Frisso G, D'Alicandro G, Limongelli G, Pastore L, Calabrò P, Lombardo B. *Clin Chem Lab Med*. 2019 Dec 10;58(9):1385-1406. doi: 10.1515/cclm-2019-0789. Print 2020 Aug 27. PMID: 31821163

4. [Urinary Biomarkers: Diagnostic Tools for Monitoring Athletes' Health Status.](#)

Pero R, Brancaccio M, Mennitti C, Gentile L, Arpino S, De Falco R, Leggiero E, Ranieri A, Pagliuca C, Colicchio R, Salvatore P, D'Alicandro G, Frisso G, Lombardo B, Mazzaccara C, Faraonio R, Scudiero O. *Int J Environ Res Public Health*. 2020 Aug 20;17(17):6065. doi: 10.3390/ijerph17176065. PMID: 32825414

5. [Athlete's Passport: Prevention of Infections, Inflammations, Injuries and Cardiovascular Diseases.](#)

Mennitti C, Brancaccio M, Gentile L, Ranieri A, Terracciano D, Cennamo M, La Civita E, Liotti A, D'Alicandro G, Mazzaccara C, Frisso G, Pero R, Lombardo B, Scudiero O. J Clin Med. 2020 Aug 6;9(8):2540. doi: 10.3390/jcm9082540. PMID: 32781561