



# Immune System and Functions of Antioxidant Flavonoids in DNA and RNA Molecules

Hages Kais\*

*Department of Pharmacy and Pharmaceutical Biosciences, University of Oslo, Oslo, Norway*

## DESCRIPTION

The immune system is a complex network of cells, proteins, and organs that work together to defend the body from foreign pathogens. To maintain optimal health, it is important to understand the different components of the immune system and the factors that can influence its function. One of these factors is the presence of antioxidant flavonoids [1]. Flavonoids are plant-based compounds that have strong antioxidant properties. They have been shown to have positive effects on the immune system by reducing inflammation and oxidation, which can lead to many metabolic disorders [2]. Additionally, flavonoids can stimulate the production of immune cells, enhance their ability to protect the body, and even prevent autoimmune diseases. In addition to their antioxidant and immune-boosting effects, flavonoids can also help to regulate the metabolism. They can reduce the risk of developing metabolic disorders such as obesity, diabetes, and heart disease [3]. Flavonoids can even help to reduce cholesterol and triglyceride levels, which can reduce the risk of cardiovascular disease. Overall, antioxidant flavonoids are essential for maintaining a healthy immune system and metabolic balance. Including these compounds in your diet can be beneficial for your overall health and well-being. It is important to note, however, that it is best to obtain flavonoids from natural sources such as fruits and vegetables, as opposed to supplements [4].

Immune System and Metabolic Disorders the immune system plays a vital role in protecting the body from disease [5]. It is composed of a complex network of cells, tissues, and organs that work together to fight off infections and other foreign invaders. At the same time, metabolic disorders can disrupt the body's ability to process and use energy [6]. Both of these processes involve the interaction of DNA and RNA molecules. DNA molecules are the blueprints for life. They contain the instructions for making proteins, which are essential for a healthy immune system. DNA molecules are present in almost every cell of the body, and they contain the genetic code that determines an individual's physical characteristics and how their body

functions. The DNA code is passed down from generation to generation, and it helps determine how well the immune system can respond to infections and other foreign invaders. RNA molecules are the messengers of DNA [7]. They are responsible for carrying the instructions from DNA to the cells to make proteins. Once the instructions have been delivered, the proteins are produced by the cells, which is essential for the immune system to recognize and fight off pathogens. In addition, RNA molecules are involved in the metabolism of macronutrients, such as carbohydrates and fats, which are necessary for providing the body with energy [8]. In summary, DNA and RNA molecules are essential for the immune system to function properly and for the body to use energy efficiently. Without these molecules, the body would be unable to recognize and fight off pathogens or process macronutrients for energy. Therefore, it is important to understand how DNA and RNA molecules play a role in the immune system and metabolic disorders in order to better manage and treat these conditions.

Maintaining a healthy immune system is essential for overall health and well-being. It helps to protect us from disease and infection, provides a barrier to foreign substances, and helps to regulate our metabolic processes [9]. With the complexity of the immune system, it can be difficult to understand how to best support it. When our immune system is functioning properly, it helps to fight off harmful bacteria, viruses, and other pathogens. It also plays a role in helping us heal from sickness, injuries, or other health issues. Supporting a healthy immune system can help to reduce the risk of developing illnesses, such as the common cold or flu, as well as more serious illnesses, such as cancer [10]. A healthy immune system also helps to ward off metabolic disorders, such as diabetes and obesity. Metabolic disorders can be caused by a number of factors, including genetics, lifestyle choices, and environmental factors. By supporting a healthy immune system, we can help to reduce the risk of developing metabolic disorders. The best way to support a healthy immune system is to make sure that you are eating a balanced diet, getting plenty of sleep, exercising regularly, and managing stress. It's also important to get regular medical check-

**Correspondence to:** Hages Kais, Department of Pharmacy and Pharmaceutical Biosciences, University of Oslo, Oslo, Norway, E-mail: hages.kais.lu.ck@email.com

**Received:** 02-Mar-2023, Manuscript No. JPP-23-20681; **Editor assigned:** 06-Mar-2023, PreQC No. JPP-23-20681; **Reviewed:** 20-Mar-2023, QC No. JPP-23-20681; **Revised:** 27-Mar-2023, Manuscript No. JPP-23-20681 (R); **Published:** 03-Apr-2023, DOI: 10.35248/2153-0645.23.14.045

**Citation:** Kais H (2023) Immune System and Functions of Antioxidant Flavonoids in DNA and RNA Molecules. *J Pharmacogenom Pharmacoproteomics*.14:045

**Copyright:** © 2023 Kais H. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

ups to ensure that your body is functioning properly. Additionally, taking supplements, such as probiotics and vitamins, can help to support a healthy immune system. By following these tips, you can help to maintain a healthy immune system and reduce the risk of developing metabolic disorders.

## REFERENCES

1. Zhou Y, Tremmel R, Schaeffeler E, Schwab M, Lauschke VM. Challenges and opportunities associated with rare-variant pharmacogenomics. *Trends Pharmacol Sci.* 2022; 43:852-865.
2. Klanderman BJ, Koch C, Machini K, Parpattadar SS. Automated pharmacogenomics reports for clinical genome sequencing. *J Mol Diagn.* 2022; 24:205-218.
3. Siamoglou S, Koromina M, Hishinuma E, Yamazaki S, Tsermpini EE. Identification and functional validation of novel pharmacogenomics variants using a next-generation sequencing-based approach for clinical pharmacogenomics. *Pharmacol Res.* 2022;176:106087.
4. Keeling NJ, Dunn TJ, Bentley JP, Ramachandran S, Hoffman JM, Rosenthal M. Approaches to assessing the provider experience with clinical pharmacogenomics information: a scoping review. *Genet Med.* 2021; 23:1589-1603.
5. Liu D, Olson KL, Manzi SF, Mandl KD. Patients dispensed medications with actionable pharmacogenomics biomarkers: rates and characteristics. *Genet Med.* 2021; 23:782-786.
6. Shah A, Shah M. Characterisation and bioremediation of wastewater: a review exploring bioremediation as a sustainable technique for pharmaceutical wastewater. *Groundw Sustain Dev.* 2020 ; 11:100383.
7. Sousa CA, Sousa H, Vale F, Simoes M. Microalgae-based bioremediation of wastewaters-Influencing parameters and mathematical growth modelling. *Chem Eng J.*2021; 425:131412.
8. Zhuang W, Hachem K, Bokov D, Ansari MJ, Nakhjiri AT. Ionic liquids in pharmaceutical industry: A systematic review on applications and future perspectives. *J Mol Liq.* 2021; 4:118-121.
9. Jagadeeswari V, Sahoo A. An overview on dry powder coating in advancement to electrostatic dry powder coating used in pharmaceutical industry. *Powder Technol.* 2022; 3:117-123.
10. Singh AK, Bilal M, Iqbal HM, Meyer AS, Raj A. Bioremediation of lignin derivatives and phenolics in wastewater with lignin modifying enzymes: Status, opportunities and challenges. *Sci. Total Environ.* 2021 ;777:145-151.