SIRPα, also known as Signal Regulatory Protein alpha, is a cell surface receptor protein that is involved in regulating immune cell functions. It is primarily expressed on the surface of myeloid cells, such as macrophages, dendritic cells, and granulocytes, and interacts with CD47, a cell surface protein that is ubiquitously expressed on most cells.

The interaction between SIRPα and CD47 plays an important role in the immune system by preventing phagocytosis (the process by which cells engulf and digest foreign particles) of healthy cells. CD47 acts as a “don't eat me” signal to the immune system, preventing immune cells from attacking healthy cells. SIRPα binds to CD47 and transmits an inhibitory signal to the immune cell, which helps to regulate immune cell activation and prevent unwanted immune responses.

However, some cancer cells and pathogens can overexpress CD47, which allows them to evade the immune system and escape phagocytosis. As a result, there is ongoing research into the development of drugs that target the SIRPα-CD47 pathway as a potential immunotherapy for cancer and other diseases.