

## Identifying modulators of Synphilin-1 an AMPK modulator for potential therapeutic benefits

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Diabetes, Obesity, Non-alcoholic fatty acid liver and cancer, are some of the metabolic disorders of great concern worldwide. Although dietary habits and lifestyle play important roles in mitigating these health concerns. Nevertheless, the role of cellular regulators which act as molecular switches might provide us better understanding on the molecular trajectory of diseases alleviation. The human body is a complex system made up of diverse biomolecules that execute different biological processes or functions. While performing a biological function or process, biomolecules like proteins or enzymes may work closely with one another to either facilitate or put a brakes on each's performance. For example, it has been shown that Synphilin-1, a metabolic regulator, interacts with AMPK the well-known master metabolic regulator, and that this interaction enhances the activation of AMPK. The identification of modulators (activators/ inhibitors) of AMPK has significantly shed light on their potent role in alleviation of metabolic diseases. What effect will the modulators of a metabolic regulator companion bring forth? An activated AMPK is a double-edged sword. Can we strike a new interest in identifying activators/inhibitors of the master regulator companion Synphilin-1? In this scoping review, we discuss on the structure, functions, and interplay between the two cellular regulators (AMPK and Synphilin-1), the role of plant metabolites/compounds as potent modulators and the approach available in identifying protein-metabolite interaction with an aim at providing contributory insights towards discovering modulators of protein Synphilin-1. The articles for compiling in this review were retrieved from databases like PubMed and Google Scholar. The 3D image of proteins was retrieved from databases Uniprot and RCSB PDB.

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