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NATURAL AND SYNTHETIC MODULATORS OF SIRTUIN ACTIVITY

Summary

Sirtuins belong to the family of NAD-dependent histone deacetylases. Sirtuin substrates include a great number of enzymes and transcription factors. In this way sirtuins regulate homeostasis of the whole organism. Sirtuins can limit the development of age-related diseases, including cancers. Their activity is modulated by many nutritional factors. Caloric restriction and some amino acids contribute to sirtuins stimulation. Excessive intake of fat and carbohydrates inhibits their activity. Daily diet includes natural sirtuin activators such as flavanols, catechins, alkaloids and isoflavonoids. Currently, new synthetic activators of sirtuins are under investigations. In view of possible involvement of some sirtuins in pathogenesis of neurodegenerative diseases, search for inhibitors of this class of enzymes is of particular importance.

Key words: caloric restriction, macronutrients, sirtuins, sirtuins activators, sirtuin inhibitors,