

## Capsaicin has an Anti-Obesity Effect

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### Abstract

**BACKGROUND:** Capsaicin (CAP) has an anti-obesity effect that has been shown to involve the transient receptor potential vanilloid-1 (TRPV1) channel. Importantly, recent studies in high fat diet (HFD)-fed mice show that CAP also alters gut microbiota composition and causes weight loss in HFD-fed mice. Many studies have suggested that short-chain fatty acids (SCFAs) mediate the links between diet, gut microbiota, and fat storage.

**OBJECTIVE:** The present study investigated whether CAP exerted its anti-obesity effect through changes in the composition of gut microbiota and SCFAs, and whether the TRPV1 contributes to CAP's effects against obesity in HFD-fed mice.

**DESIGN:** C57BL/6J (TRPV1<sup>+/+</sup>) and B6.129X1-Trpv1<sup>tm1Jul/J</sup> (TRPV1<sup>-/-</sup>) mice were respectively divided into three groups (n = 6), that is SLD, HFD-fed, and CAP (2 mg/kg, po) +HFD fed and were administered respective treatment for 12 weeks.

**RESULTS:** We observed significantly lower weight gain and food intake, triglyceride, cholesterol, glucose, and insulin levels in HFD+CAP-fed TRPV1 knockout (KO) mice compared to the HFD-fed KO mice, though this effect was more obvious in wild-type (WT) mice. CAP increased the numbers of Akkermansia, Prevotella, Bacteroides, Odoribacter, Allobaculum, Coprococcus, and S24-7, and reduced the numbers of Desulfovibrio, Escherichia, Helicobacter, and Sutterella in the HFD+CAP-fed WT and KO mice compared with HFD-fed WT and KO mice. CAP increased the relative abundances of SCFAs producing the bacterial species, which increased intestinal acetate and propionate concentrations, which were beneficial in prevention and treatment of obesity.



### Biography:

Prof. Dr. Anil Batta is presently professor & Head with senior consultant in Govt. Medical College, Amritsar. He did his M.B.B.S. and M.D. in Medical Biochemistry from Govt. Medical College, Patiala in 1984 and 1991, respectively. His research interest is mainly in clinical application especially cancer and drug de-addiction. He has supervised more than 25 M.D., M.Sc. and Doctorate researches and published more than 130 international research papers. He is the chief editor of America's Journal of Biochemistry. He is also working as advisor to the editorial board of International Journal of Biological and Medical Research. He has been deputed member Editorial Board of numerous International & National Medical Journals of Biochemistry. He has also been attached as technical advisor to various national and international conferences in Biochemistry. He has been attached as hi-tech endocrinal, genetics and automated labs of Baba Farid Univ. of Health Sciences, Faridkot. He has chaired various sessions in the Biochemistry meets. He has been designated as member Editorial Board of various in US and other European Countries. He is also involved in various research projects at Govt. Medical, Amritsar. He has done superspecialisation in Drug-de-addiction from PGIMER, Chandigarh.

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