The Natural HASPIN Inhibitor Coumestrol Suppresses Intestinal Polyp Development, Cachexia, and Hypogonadism in a Mouse Model of Familial Adenomatous Polyposis (ApcMin/+).

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Abstract

(1) Background: HASPIN kinase is involved in regulating spindle function and chromosome segregation, as well as phosphorylating histone H3 at Thr3 in mitotic cells. Several HASPIN inhibitors suppress cancer cell proliferation. It was recently reported that coumestrol from bean sprouts inhibits HASPIN, and a cultivation method for bean sprouts containing large amounts of coumestrol has been established. Here, we showed the effects of bean sprout ingestion on intestinal polyp development, cachexia, and hypogonadism in a mouse model of familial adenomatous polyposis (*Apc*$^{Min/+}$). (2) Methods: *Apc*$^{Min/+}$ mice were randomized into control and treatment groups. Mice in the control group were given the standard diet, while those in the treatment group were given the same standard diet with the addition of 15% bean sprouts. Treatments were commenced at 7 weeks old and analyses were performed at 12 weeks old. (3) Results: ingesting bean sprouts suppressed the development of intestinal polyps, cachexia, and hypogonadism, and also increased serum levels of testosterone in male wild-type and *Apc*$^{Min/+}$ mice. (4) Conclusions: ingesting bean sprouts helps prevent cancer and increases serum levels of testosterone in a mouse model. These results are expected to be applicable to humans.