We aimed to determine the effect of APS on apoptosis in gastric carcinoma cells (SGC-7901) with or without adriamycin.

**Methods** SGC-7901 cells were conditioned and given APS (50–200 µg/mL, for 24–48 h) with or without adriamycin (0.1 mg/L). Cell viability was examined by MTT assay, while apoptosis was observed through the evaluation of active caspase-3 activity and DNA fragmentation. Real-time PCR was used to analyze the expression of multi-drug resistant (mdr1) gene and tumor suppressor. Cleaved caspase-3 and phosphorylated AMPK (p-AMPK) were detected by Western blot.

**Results** Cellular viability was profoundly reduced, but apoptosis was increased by APS in a time- and dose-dependent manner, which was related to the increase in p-AMPK levels. More importantly, APS enhanced the sensitivity to adriamycin-induced decrease of cellular viability and increased apoptosis in gastric carcinoma cells (SGC-7901). Additionally, APS increased tumor suppressor genes [F-box and WD repeat domain containing semaphorin III/F (SEMA3F), 7 (FBXW7), and p21(Cip1/p21)] but decreased mdr1 expression. Eventually, p-AMPK levels were decreased in adriamycin-resistant gastric cancer cells comparing to adriamycin-sensitive gastric cancer cells and human immortalized gastric epithelial cell line.

**Conclusions** APS not only induces apoptosis alone but also strengthens pro-apoptotic effect of adriamycin in gastric carcinoma cells, which is the basis of further study to develop APS as a chemotherapeutic sensitiser against gastric cancer.

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**Study of Consumption of Spicy Foods and the Prevalence of Irritable Bowel Syndrome in Darbhanga District, Bihar, India**

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**Background** Irritable bowel syndrome (IBS) is considered to be prevalent in the general population, but there are little data on bowel habits and IBS in India. To study and explore the association between the consumption of Indian spicy foods and the prevalence of irritable bowel syndrome among Indian adults.

**Methods** In this cross-sectional study, data from 7468 Indian adult participants were used in Darbhanga district, Bihar, India. Consumption of spicy foods was estimated using a dietary habits questionnaire that included a question on spicy foods consumption: ‘how frequently do you use spicy foods (pepper, curry, ginger, cinnamon and turmeric) during a week?’ Participants could respond to the question by choosing one of these choices: never, 1–3 times, 4–6 times, 7–9 times, or more than 10 times per week. A modified Persian version of the Rome III questionnaire was used to determine the prevalence of IBS.

**Results** IBS was prevalent in 28.4% (26.6% of men and 32.1% of women) of the study population. After controlling for potential confounders including dietary behaviors, those consuming spicy foods ≥10 times per week were 92% more likely to have IBS compared with those who never consumed spicy foods (OR = 1.92; 95%CI: 1.23–3.01, P trend < 0.01). The association remained significant even after taking lactose intolerance into account (OR = 1.85; 95%CI: 1.18–2.90, P trend < 0.01). Stratified analysis by gender revealed that the association between consumption of spicy foods and IBS was not significant in men; however, a significant association was found among women after taking potential cofounders, including meal regularity and lactose intolerance, into account. Women who consumed spicy foods ≥10 times per week were two times more likely to have IBS compared with those who never consumed spicy foods (OR = 2.03; 95%CI: 1.09–3.77, P trend = 0.02).

**Conclusions** Consumption of Indian spicy foods is directly associated with IBS, particularly in women. Further, prospective studies are warranted to examine this association in other populations; and evaluate whether dietary interventions, for example, a reduction in spice consumption, would improve IBS symptoms.

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**LINC00920 Contributes to the Maintenance of mRNA Stabilizer IGF2BP2 in Colorectal Cancer**

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**Background** Long non-coding RNAs (lncRNAs) play an unneglectable role in epigenetic regulation of cancer cells, including...
binding to proteins and regulating cellular metabolism. The aim of this study was to identify a certain IncRNA promoting the progress of advanced colorectal cancer (CRC) with a therapeutic perspective.

Methods We screened out highly expressed IncRNAs using samples from patients with stage IV CRC compared with matched adjacent normal tissues. The proteins interacted with linc00920 was confirmed with RNA pull-down and RNA immunoprecipitation (RIP) assay. The proliferation and metabolic alteration of CRC under linc00920 inhibition were tested in vitro and in vivo.

Results Linc00920 was upregulated in CRC with poor overall survival, and inhibition of linc00920 resulted in impaired growth of CRC cell lines. Moreover, knocking down of linc00920 was consistent with a lower level of insulin-like growth factor 2 mRNA-binding protein 2 (IGF2BP2), which is known as a m^6A ‘reader’ and mRNA stabilizer. Linc00920 bound to the ubiquitination sites of IGF2BP2 and prevented its autophagic degradation, maintaining the MYC-mediated glycolysis in CRC. Moreover, inhibition of linc00920 suppressed the proliferation of tumors from patient-derived xenograft (PDX) models.

Conclusions Linc00920-IGF2BP2-MYC axis promotes the progress of CRC as a promising therapeutic target.

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OVEREXPRESSION OF PDEF SUPPRESSES CELL AGGRESSIVENESS IN COLORECTAL CANCER

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**Background** Prostate-derived Ets factor (PDEF) belongs to the Ets family of transcription factors. It plays an important role in tumorigenesis and progression of many tumors such as prostate cancer, breast cancer, and gastric cancer. However, its biological function in colorectal cancer (CRC) is still unclear.

**Methods** A lentivirus vector overexpressing PDEF was constructed and transfected into SW620 cells with lipofectin. In order to knock down the expression of PDEF, PDEF-custom siRNA was transfected into SW620 cells. The expression level of PDEF was detected by western blot and real-time-polymerase chain reaction. The proliferation, invasion, and migration of SW620 cells were investigated after transfection. Meanwhile, transfected SW620 cells were subcutaneously injected into nude mouse, and the specimens were harvested from the injection site for histological analysis after six-weeks injection.

**Results** Cell proliferation was significantly inhibited when PDEF was overexpressed. Transwell tests showed that PDEF overexpression could suppress the migration and invasion of SW620 cells. In contrast, the ability of proliferation, migration and invasion became stronger when PDEF was knocked down. Further flow cytometry showed that overexpression of PDEF could reduce the ratio of cells at the G2/M phase. In addition, subcutaneous transplanted tumors overexpressing PDEF in the xenograft model were significantly smaller than the control group.

**Conclusions** Overexpression of PDEF could inhibit the proliferation and invasion of CRC cell in vitro and in vivo. Our study suggested that PDEF could serve as a potential tumor biomarker and drug target in CRC.