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# Pancreatic response of rats fed genetically modified soybean

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### **Abstract**

Mice fed genetically modified (GM) soybean were not affected in nutritional performance, but pancreatic microscopic features were disturbed. The mechanisms for these contradictory findings are unknown. This study analysed the histology of acinar pancreatic cells and the expression of pancreatitis-associated protein (PAP) and trypsinogen mRNA in rats fed GM soy protein. Two bioassays were run, each one with 34 Wistar rats distributed into two groups fed with non-GM or GM-soy protein (18% protein) for 0, 1, 3, 5, 15 and 30 days. Nutritional evaluation, plasma amylase levels, pancreatic histological analysis and quantification of PAP and trypsinogen mRNAs levels using quantitative real-time RT-PCR were done. No differences in nutritional performance among rats fed non-GM and GM diets were found. The GM, but not the non-GM, diet induced zymogen-granule

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depletion after 15 days feeding, returning to normal levels after 30 days (P < 0.05). Acinar disorganization started as early as 5 days after initiation of the GM diet and it recovered after 30 days. Levels of PAP mRNA significantly increased in the GM diet between day 1 and day 3 and decreased to the basal level by day 15. Trypsinogen mRNA peaked at two different times; at day 1 and at day 15, decreasing to basal levels after 30 days. Plasma amylase levels remained unchanged at all times. This indicates that GM soy protein intake affected pancreas function, evidenced by the early acute PAP mRNA increased levels and pancreas cellular changes followed by recuperation of acinar cells after 30 days.

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