

Polymer coating of *Salmonella* circumvents the *Salmonella*-specific immune response

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Abstract

The use of *Salmonella* as a potential antitumor agent has been investigated, but innate immunity against this bacterium reduces the efficacy of its tumor-targeting and antitumor activities. The purpose of this study was to investigate the modulation of the tumor-targeting efficiency of *Salmonella enterica* serovar *choleraesuis* by modifying the immune response to these bacteria by coating them with poly(allylamine hydrochloride) (PAH), designated PAH-S.C. To evaluate this modulation, we used naïve mice and mice immunized with *Salmonella* to study the role of the preexisting immune response to the antitumor activity of PAH-S.C. When

anti-*Salmonella* antibodies were present, the invasion activity, cytotoxicity, and gene transfer of *Salmonella* was significantly decreased, both *in vitro* and *in vivo*.

Treatment with PAH-S.C. resulted in delayed tumor growth and enhanced survival in immunized mice. Furthermore, immunohistochemical studies of the tumors revealed the infiltration of neutrophils and macrophages in immunized mice treated with PAH-S.C. These results indicate that *Salmonella* encapsulation effectively circumvented the *Salmonella*-specific immune response.