

TUMOR HEMORRHAGIC POLYSACCHARIDES FROM STREPTOCOCCUS AND SERRATIA ARE THE API'S OF COLEY'S TOXIN: PS1, THE SERRATIA CONSTITUENT

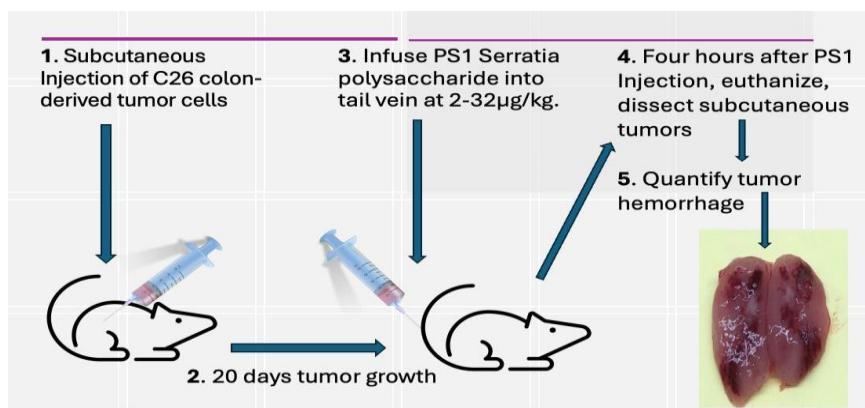
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Abstract: Serratia PS1 polysaccharide causes tumor hemorrhage within 4 hours.



Coley's Toxin comprised a mixture of cell-free, heat-treated culture media from *Streptococcus pyogenes* (originally *Streptococcus erysipelas*) and *Serratia marcescens* (originally *Bacillus prodigiosus*). A 250kDa tumor hemorrhage-inducing polysaccharide "PS1" is reported here secreted into culture medium by *Serratia marcescens*. Four hours after PS1 is injected at 32µg/kg (10pM) into the tail vein of Balb/C mice bearing C26 subcutaneous colon-derived tumors, tumor-specific capillary hemorrhage is exhibited in 90% of tumors. As a positive control, CM101, a similar tumor hemorrhagic polysaccharide from *Streptococcus agalactiae* caused tumor hemorrhage in 75% of tumors in the Balb/C-C26 model at 7.5µg/kg(2.5pM). In 1866-1868, Busch observed that a sarcoma patient with nosocomial **erysipelas** experienced profound regression of tumors, results published in German, 1866. Busch infected other sarcoma patients by cauterizing the tumor and hospitalizing them in the same, unwashed hospital bed sheets with an open wound to induce **erysipelas** (at the time, of unknown etiology). Patients who contracted erysipelas showed tumor regression, Busch, 1868. In 1881, Fehleisen isolated "*Streptococcus erysipelas*" from erysipelas patients (now christened *S. pyogenes*, Lancefield Group A). Following Busch' observations, Fehleisen deliberately infected cancer patients with cultured live bacteria, and observed tumor regression. In 1890, Wm B Coley Independently found tumor regression in patients upon erysipelas infections. He mixed cell-free heat-treated culture media from *Streptococcus* and *Serratia*, known as "Coley's Toxin, and in 1910 reported more than 800 cases with 50% 5 year survival rates. Shear, et al. 1943, showed that an active fraction from *Serratia* was polysaccharide, peptide and LPS free. We report PS1, from *Serratia marcescens*, as a 250Kda tumor hemorrhagic polysaccharide isolated from Shear's fraction.