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Antitumor activity of Propionibacterium acnes (Corynebacterium parvum) and isolated cytoplasmic fractions.

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Abstract

The tumor-inhibitory effect of an intralesional injection of Propionibacterium acnes was of limited duration ("finite"). Our model was the DBA/2 syngeneic mouse injected with P815 mastocytoma cells (5×10^5) into each rear footpad; only the left was treated, leaving the right as a "pseudometastasis." The finite effect occurred at approximately 21 days after the first treatment. Subsequent i.p. treatments with P. acnes did not alter this effect, although they increased mean survival time. With one footpad tumor, we achieved 22% cures with complete regression and no sign of metastatic growth. A RNA fraction from P. acnes produced inhibition of tumor growth, but crude cell walls and cell walls treated with Pronase had no effect. A P. acnes cytoplasmic fraction with tumor-inhibitory activity was pelleted by high-speed centrifugation; this fraction inhibited P815 mastocytoma as fully as whole cells injected in one-fifth the dose on a nitrogen basis and did not cause a local inflammatory reaction. The activity of the pellet also differed from whole cells in that it was equally inhibitory to the pseudometastasis in the contralateral right rear footpad. The cytoplasmic fraction apparently contained at least two active components since activity was obtained at two dilution levels. Such activity was relatively stable at 5 degrees, but it was unstable at -30 degrees.

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