Plant tumors incited by Agrobacterium tumefaciens contain new compounds which are specific to the bacterial strain inoculated. These compounds are degraded with the same specificity by the pathogenic bacteria. This correlation may be the consequence of gene transfer during crown gall tumorigenesis. [The SC® indicates that this paper has been cited in over 135 publications since 1970, making it the most-cited paper published in this journal.]

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June 27, 1983

"Crown gall tumors are plant cancers incited by the soil bacterium, Agrobacterium tumefaciens. Work begun in the mid-1950s showed that crown gall cells synthesize new compounds,1,2 now called opines, which were claimed to be specific markers for these cells. In G. Morel's laboratory, at the Centre National de Recherches Agronomiques, in Versailles, France, where three opines had been discovered and structurally identified, we were trying to understand the reason for the synthesis of such substances in crown gall cells.

The work reported in the paper is the follow-up of an observation that the type of opine found in crown gall tumors is determined by the bacterial strain that incites the tumor. We studied a number of crown gall strains. We compared them to their inducing bacterial strain and not only generalized the observation, but also showed that the bacterial strains which incited these tumors degrade the specific opines which they induce the