

Influence of Rat Strain and Arthritogen on Actions of Gold Drugs in Adjuvant-Induced Polyarthritis

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The effects of aurothiomalate (ATM) and auranofin (AF) on adjuvant-induced polyarthritis and serum gold levels were studied in Dark Agouti (DA), Ginger Hooded (GH), and J C Lewis (JCL) rats given adjuvants constituted from heat-killed *Mycobacterium tuberculosis* (TBC) in squalane (TBC/SQ), TBC in triolein (TBC/TO), or CP20961 in squalane (CP/SQ). Despite the total dose of gold being the same in animals treated with ATM or AF, the serum gold levels were consistently lower with AF. Moreover, there were no differences in serum gold levels between the different rat strains or changes after administration of different adjuvants. In DA rats, AF suppressed the arthritis induced by all three adjuvants, but ATM was effective only against disease produced by TBC/SQ and TBC/TO. In GH rats, animals given TBC/TO did not develop arthritis and were unaffected by AF or ATM; but arthritis induced by TBC/SQ or CP/SQ was suppressed by AF but not by ATM. In JCL rats arthritis induced by TBC/SQ was potentiated by ATM and suppressed by AF; however, animals given TBC/TO did not develop arthritis unless treated with ATM, and animals given CP/SQ did not develop arthritis with or without gold treatments.

Thus ATM and AF have ambivalent effects in adjuvant-induced polyarthritis depending on the combination of the strain of rat and type of adjuvant used. Paradoxically ATM may provoke, potentiate, or inhibit the disease, depending upon the strain-adjuvant combination used. The findings support the concept that ATM and AF have different modes of action, and that the responsiveness to arthritogens and gold drugs may be genetically determined.
