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(54) **Title:** DETECTING ANTIBIOTIC AND/OR CHEMICAL USE IN ANIMALS USING EPIGENETIC MEANS

(57) **Abstract:** The present invention is related to a method of determining if a test animal and/or a test animal from which a product is derived has been treated and/or is currently undergoing treatment with at least one antibiotic and/or veterinary chemical, the method comprising: (a) determining a test methylation profile from the genomic material contained in a biological sample obtained from the test animal and/or the animal-derived product; and (b) comparing the test methylation profile obtained from (a) with a reference methylation profile obtained from a control animal of the same biological taxon of the test animal, where the control animal was not treated and/or is not currently undergoing treatment with at least one antibiotic and/or veterinary chemical, wherein a difference in the test methylation profile of (a) compared to the reference methylation profile from the control animal, is indicative of the test animal having been treated and/or is currently undergoing treatment with at least one antibiotic and/or veterinary chemical; and wherein the test animal is a terrestrial animal and wherein the veterinary chemical is an anti-parasitic, an anti-viral, a feed additive, a water additive, a disinfectant, glutaraldehyde, and/ or formalin.

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