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In addition to the sympathetic input controlling pineal function, a neuroanatomical connection with the CNS was recently established, with an innervation of central origin. This implicates possible involvement of the pineal in behavioral and mental responses, as well as psychiatric, particularly seasonal, disorders.

COMPARISON OF TWO ALTERNATIVE MATHEMATICAL MODELS OF ANTIGENIC KINSHIP BETWEEN AVIAN PARAMYXOVIRUSES

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A combinatorial model of the antigenic kinship between avian paramyxoviruses recently developed by the authors was based on the postulate that any mutational changes in any antigenic determinant proceed according to the "all-or-nothing" law, i.e. the antibodies against the changed determinant must not react at all with the original antigen (before the mutation). The model, being based on the data of function inhibition tests, has interpreted in specific terms some serological results, in particular, the old but mysterious phenomenon of asymmetric cross reactivity.

An alternative mathematical model is based on a quite different postulate that mutational factors may cause gradual changes in the antigenicity of the antigenic determinants, leading to appearance of the "families" of the relative determinants. The new model also interprets some serological results. Since the choice between the two models is based on the criterion of the best fit to the experimental data and if both the models well fit the results, crucial experiments permitting the choice between the models are suggested. These are based on the combination of the functional inhibition tests with the tests on the direct antigen-antibody binding. The choice between the models would indicate whether the antigenic evolution of the avian paramyxoviruses occurs by the formation of the new antigenic determinants by "all-or-nothing" jumps or by the gradual changes.

EPIDEMIOLOGICAL STUDIES OF AVIAN MYCOPLASMA USING GENOMIC FINGERPRINTING

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Two major types of variation within the *M. gallisepticum* species have been described. Certain *M. gallisepticum* strains differ markedly in their biological properties but are indistinguishable by known serological tests. The most prominent example is the F vaccine strain. The inability to distinguish the vaccine from standard *M. gallisepticum* strains