

Salivary Protein Variation in Macaque Monkeys

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Several human salivary proteins are known to exhibit genetic polymorphism, but little information is so far available in non-human primates as to such phenotypic variability. We tried to collect a considerable number of saliva samples from Japanese monkey (Macaca fuscata) and also other species of macaques to examine their salivary proteins.

Whole saliva was obtained by drooling from pilocarpine-stimulated animals of 42 M.fuscata, 6 M.mulatta and other 18 monkeys from 6 species. Parotid saliva was obtained by ductal cannulation in some selected animals. Analysis was mainly performed by polyacrylamide gel electrophoresis in alkaline buffer system.

Compared with humans macaque salivas showed unique patterns in anionic gels. When stained with dimethoxybenzidine, individual salivas disclosed one broad zone. This component constituted of major protein in monkey saliva, and probably corresponds to so-called MPRP (macaque proline-rich), since proline was highest in amino acid composition in the purified proteins. Same pattern was observed in all of 66 samples, indicating that macaque PRP is monomorphic.

Intra-species variation was detected in far-anodal region of the protein-stained gels, in which 2 bands and 3 types were distinct in M.fuscata. Differing from MPRP, the proteins, whose molecular weight were calculated to be about

18K by SDS electrophoresis, were less evident or almost lack in parotid secretions, and did not show high affinity to hydroxyapatite. Some monkeys possessed several other protein bands, each having different mobility, suggesting that genetic variation of the "Fast" proteins occur in macaques.

By starch-iodine method individual saliva showed one or two main amylase isozymes with accomapnying minor ones. Various phenotypes were observed and 5 different main isozymes (presumable alleles) have been discriminated in the samples. In contrast to humans, salivary amylase appears to be highly polymorphic in macaques.

III. DNA and Chromosomes

