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### Comparative antimutagenicity of saliva and oral bacteria against mutagens

Noboru Kuboyama<sup>1)</sup>, Katsuyuki Obayashi<sup>2)</sup>, Junko Narushima<sup>2)</sup>, Yuko Shirai<sup>2)</sup>, Nobuo Yokoyama<sup>2)</sup>, Toei Matsumura<sup>2)</sup> and Takahide Maeda<sup>2)</sup>

1) Department of Oral Molecular Pharmacology, Nihon University School of Dentistry at Matsudo

2) Department of Pediatric Dentistry, Nihon University School of Dentistry at Matsudo

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**Abstract** The purpose of this study was to investigate the mutagenic and antimutagenic interactions between several fractions of saliva and the habitual oral bacteria. Antimutagenicity was examined against the known mutagenic substances, 4-nitroquinoline-1-oxide (4NQO), AF-2 and benzo[a]pyrene (B[a]P), using *Salmonella typhimurium* strains TA98 and TA100 in Ames test and Rec<sup>+</sup> and Rec<sup>-</sup> strains of *Bacillus subtilis* of Rec-assay. Four fractions from human saliva, whole saliva, supernatant saliva (Sup), precipitation in saliva (PPT) and heated saliva (Heat), were examined against 4NQO, AF-2 and B[a]P-induced mutagenicity. The whole saliva exhibited the strongest antimutagenic activity amongst all fractions applied against 4NQO and AF-2 in Ames test with more than an 80% inhibition rate. However, the whole saliva had an activity of only 50% inhibition against BP. The potency of the antimutagenicity was in the following order: whole saliva > Sup > PPT > Heat, in Ames test. Rec-assay also exhibited a pattern of antimutagenicity similar to that of Ames test. The cultured supernatants of the oral anaerobic bacteria exhibited a weak mutagenic potency. The cell wall skeletons of the oral anaerobic bacteria exhibited stronger antimutagenic activity against each mutagen than that of the oral aerobic bacteria.

**Key words** Ames test, Antimutagenicity, Human saliva, Oral anaerobic bacteria

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