

B-9. Prior exposure of mice to *Fusobacterium nucleatum* modulates host response to *Porphyromonas gingivalis*

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Multiple periodontal pathogens sequentially colonize the subgingival niche during the conversion from gingivitis to destructive periodontal disease. An animal model of sequential immunization with key periodontal pathogens has been developed to determine whether T and B lymphocyte effector functions are skewed and fail to protect the host from pathogenic challenge. The present study was performed to evaluate immunomodulatory effect of exposure to *Fusobacterium nucleatum*(*F. nucleatum*) prior to *Porphyromonas gingivalis*(*P. gingivalis*). Group 1(control) mice were immunized with phosphate-buffered saline, Group 2 were immunized with *F. nucleatum* prior to *P. gingivalis*, while Group 3 were immunized *P. gingivalis* alone. All the T cell clones derived from Group 2 demonstrated type 2 helper T cell clone(Th2 subsets), while those from Group 3 mice demonstrated Th1 subsets. Exposure of mice to *F. nucleatum* prior to *P. gingivalis* interfered with opsonophagocytosis function of sera against *P. gingivalis*. In adoptive T cell transfer experiments, in vivo protective capacity type 2 helper T cell clones(Th2) from Group 2 was significantly lower than type 1 helper T cell clones(Th1) from Group 3 against the lethal dose infection of *P. gingivalis*. Western blot analysis indicated the different pattern of recognition of *P. gingivalis* fimbrial proteins between sera from Group 2 and Group 3.

In conclusion, these study suggest that colonization of the subgingival niche by *F. nucleatum* prior to the periodontal pathogen, *P. gingivalis*, modulates the host immune responses to *P. gingivalis* at humoral, cellular and molecular levels.