

Establishment and Stability of the Murine Oral Microbiome

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JOURNAL OF DENTAL RESEARCH

Volume: 99

Issue: 6

Pages: 721-729

Special Issue: SI

Article Number: UNSP 0022034520915485

DOI: 10.1177/0022034520915485

Published: JUN 2020

Early Access: APR 2020

Document Type: Article

[View Journal Impact](#)

Abstract

Commensal microbiomes exert critical functions at barrier sites. In particular, establishment of the commensal microbiome after birth dictates immune functionality and tissue homeostasis at mucosal surfaces. To investigate the establishment and stability of the oral mucosal microbiome in mice, we evaluated oral microbiome communities shortly after birth, through adulthood, and up to 1 y of life in a controlled manner, using sequential oral samples from the same mice over time. We further evaluated transmissibility of oral microbiomes from parents and during cohousing experiments and evaluated susceptibility to oral inflammatory disease in mice harboring distinct microbiomes. Our work reveals basic principles in the establishment and stability of a health-associated oral microbiome after birth and provides insights that may be important for host-microbiome experimentation in animal models.

Keywords

Author Keywords: [microbiome establishment](#); [microbiome transfer](#); [microbiome stability](#); [oral microbial acquisition](#); [oral mucosal microbiome](#); [gingival microbiome](#)

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Funding

Funding Agency Show details	Grant Number
Intramural Program of the National Institute of Dental and Craniofacial Research (NIDCR)/National Institutes of Health (NIH)	
Comision Nacional de Investigacion Cientifica y Tecnologica (CONICYT) CONICYT FONDECYT	11180505 11180389

[View funding text](#)

Publisher

SAGE PUBLICATIONS INC, 2455 TELLER RD, THOUSAND OAKS, CA 91320 USA

Journal Information

- **Impact Factor:** [Journal Citation Reports](#)

Categories / Classification

Research Areas: Dentistry, Oral Surgery & Medicine

Web of Science Categories: Dentistry, Oral Surgery & Medicine

Document Information

Language: English

Accession Number: WOS:000534032600001

PubMed ID: 32345105

ISSN: 0022-0345

eISSN: 1544-0591