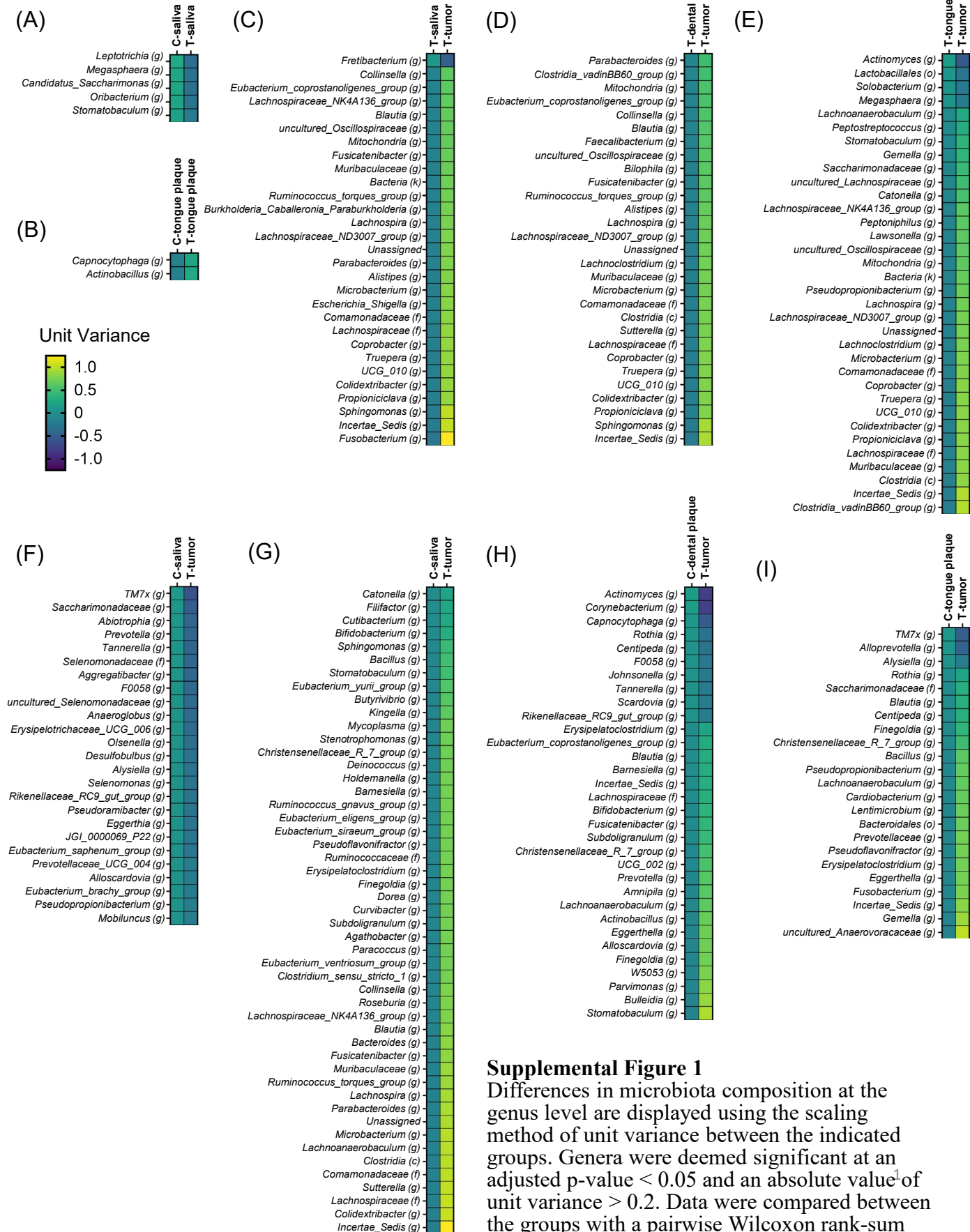
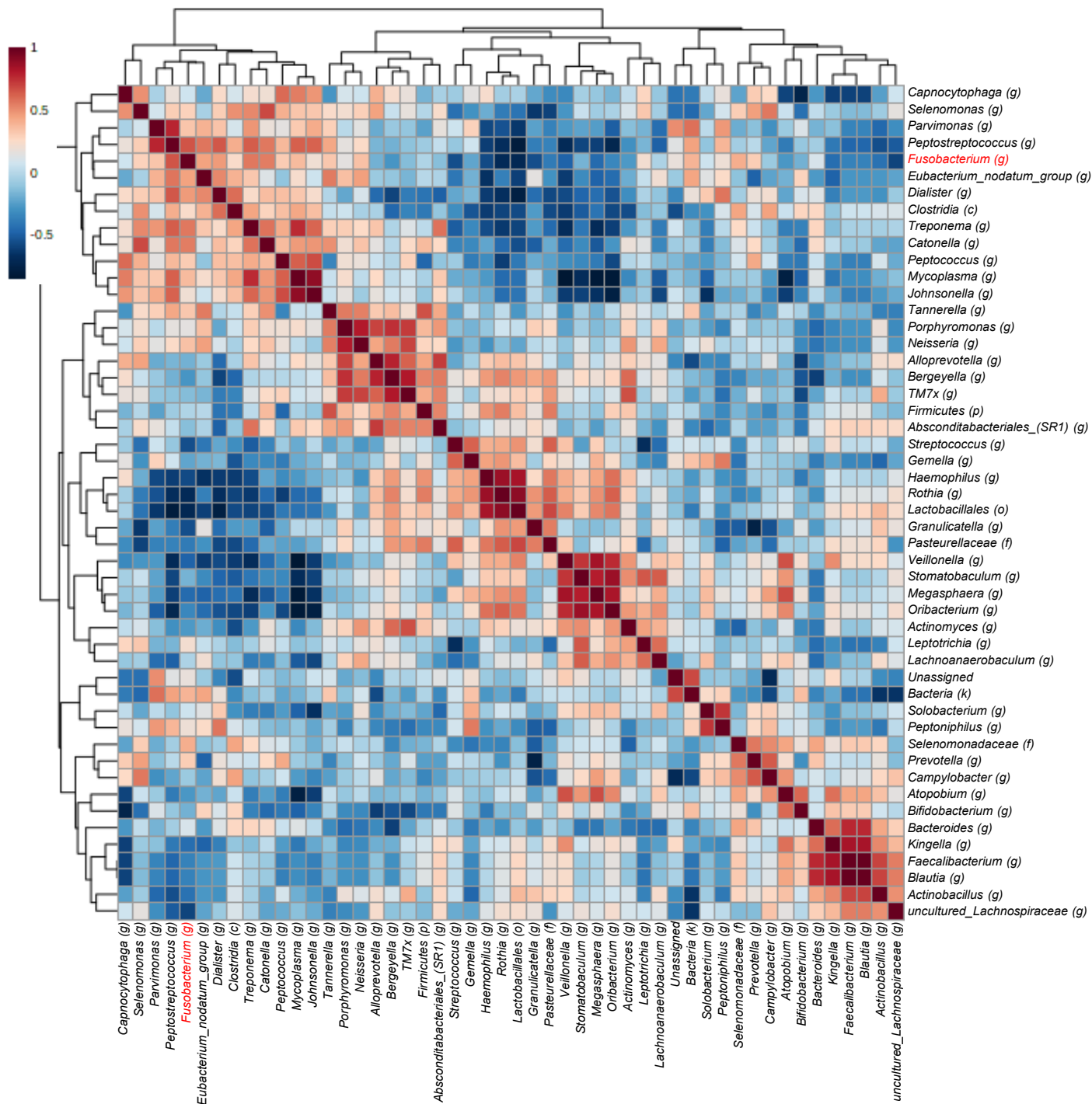


Supplemental Figure. S1



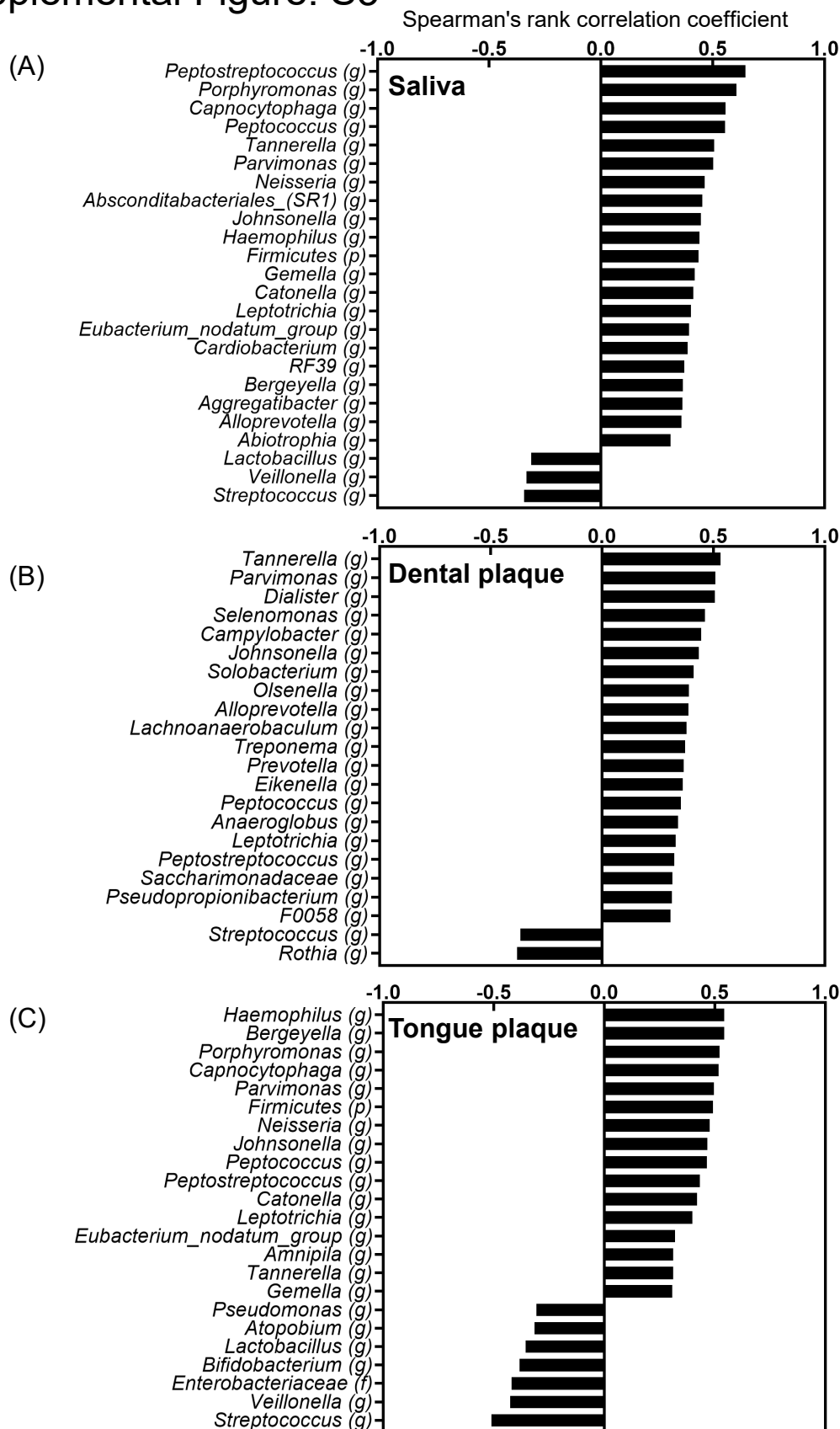
Supplemental Figure. S2



Supplemental Figure 2

Co-occurrence analysis of the top 50 bacterial genera in tumor tissues from oral cancer patients is depicted using Spearman's rank correlation coefficient in a heat map.

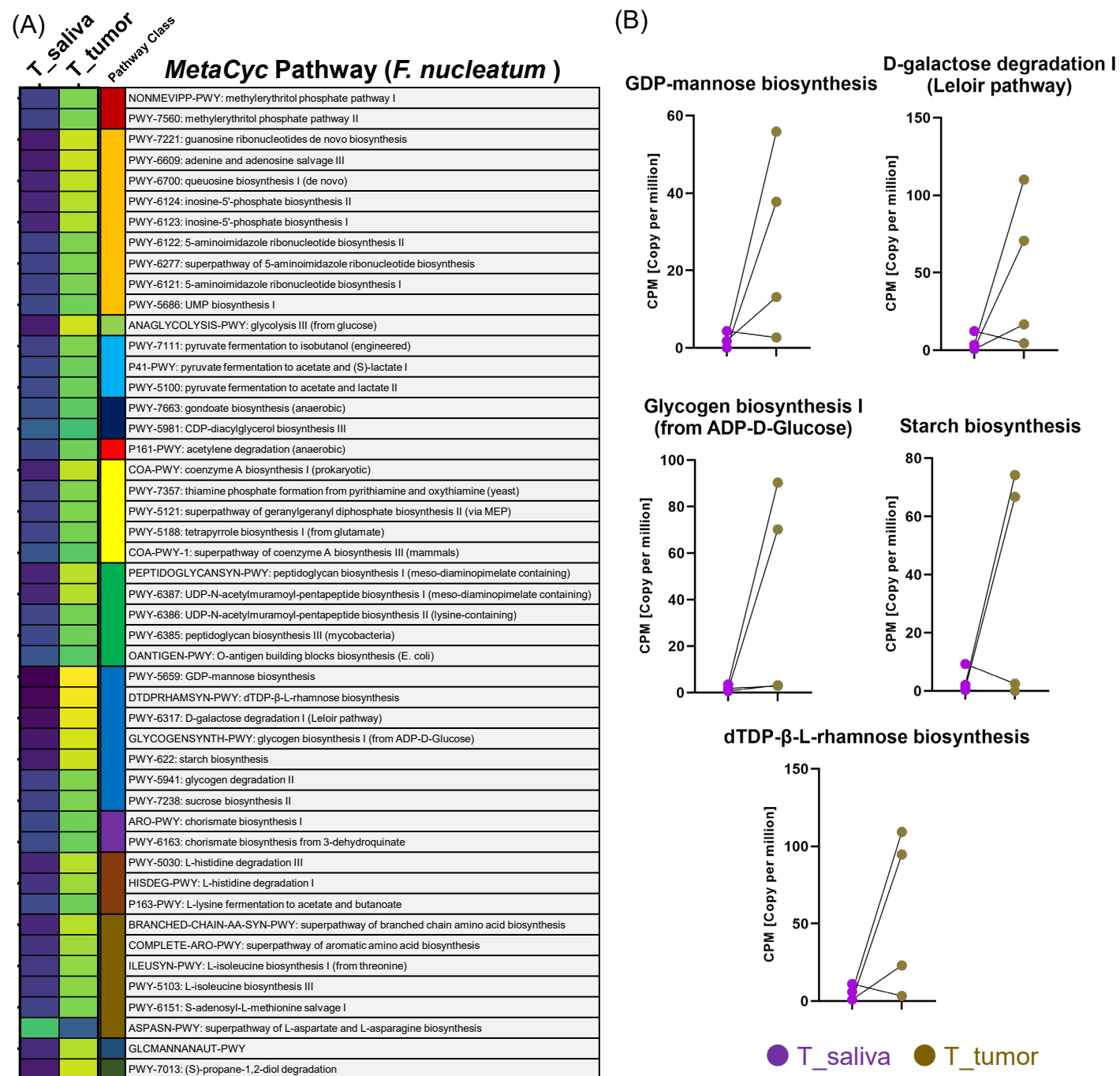
Supplemental Figure. S3



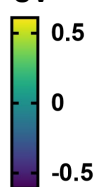
Supplemental Figure 3

Correlation between the abundance of *Fusobacterium* and other bacterial genera in saliva (A), dental plaque (B), and tongue plaque (C) between the control and oral cancer patient groups is showcased using Spearman's rank correlation coefficient in bar plots.

Supplemental Figure. S4



UV



Pathway Class

Secondary Metabolites Biosynthesis
Nucleosides and Nucleotides Biosynthesis
Glycolysis
Fermentation
Fatty Acid and Lipid Biosynthesis
Degradation/Utilization/Assimilation - Other
Cofactors, Prosthetic Groups, Electron Carriers Biosynthesis
Cell Structures Biosynthesis
Carbohydrates Degradation
Aromatic Compounds Biosynthesis
Amino Acids Degradation
Amino Acids Biosynthesis
Amines and Polyamines Degradation Superpathways
Alcohols Degradation

Supplemental Figure 4

(A) All microbial pathways of *Fusobacterium nucleatum* associated with saliva and tumors from oral cancer patients were identified with the HUMAnN3 tool, analyzing microbial gene families. Pathway abundances are based on copies per million (CPM), and differences in CPM are displayed using the scaling method of unit variance between the groups. (B) Indicated pathway abundances of *F. nucleatum* in saliva and tumors from the same oral cancer patients are shown.

Supplemental Figure. S5

Fusobacterium nucleatum subsp. polymorphum strain KCOM 1260 (=ChDC F218) genome

Sequence ID: [CP021934.1](#) Length: 2635767 Number of Matches: 5

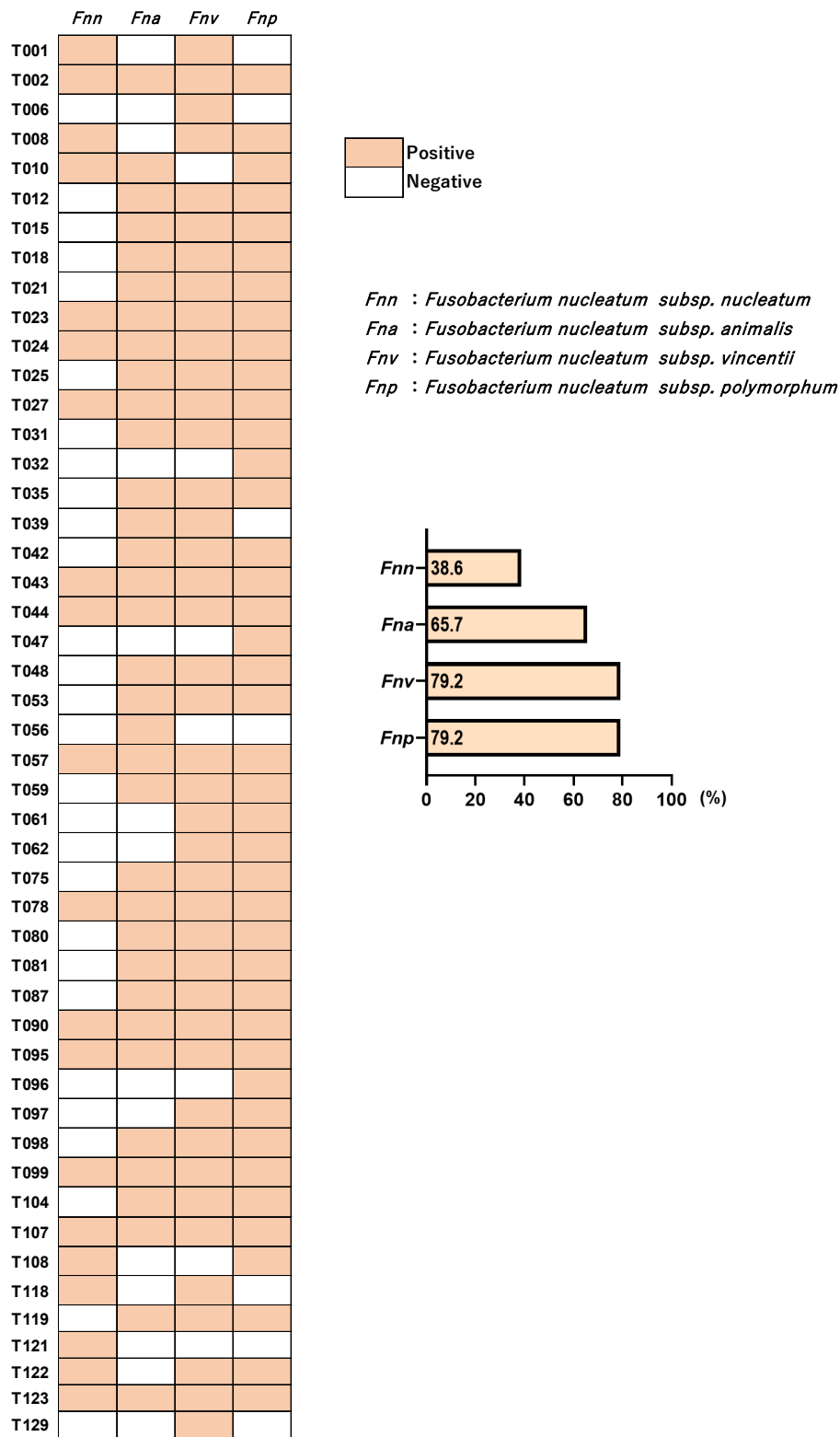
Range 1: 1706311 to 1707158 [GenBank](#) [Graphics](#)

[▼ Next Match](#) [▲ Previous Match](#)

Score	Expect	Identities	Gaps	Strand
1554 bits(841)	0.0	847/850(99%)	2/850(0%)	Plus/Minus
Query 1	TCCTAGGATTATGAAAGCTATATGCGCTGTGAGAGAGCTTTGCGTCCCATTAGCTAGTTG	60		
Sbjct 1707158	TCCTAGGATTATGAAAGCTATATGCGCTGTGAGAGAGCTTTGCGTCCCATTAGCTAGTTG	1707099		
Query 61	GAGAGGTAACGGCTCACCAAGGCGATGATGGGTAGCCGGCTGAGAGGGTGATCGGCCAC	120		
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Query 121	AAGGGGACTGAGACACGGCCCTTACTCTACGGGAGGCAGCAGTGGGGAATATTGGACAA	180		
Sbjct 1707038	AAGGGGACTGAGACACGGCCCTTACTCTACGGGAGGCAGCAGTGGGGAATATTGGACAA	1706979		
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Query 241	TGCTTTTCAGTTGGGAAGa a a a a a TGACGGTACCAACAGAGAAGTGAACGGCTAAATACG	300		
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Query 841	ATGGGCTGTC 850			
Sbjct 1706319	ATGG-CTGTC 1706311			

Supplemental Figure 5
Isolated *Fn* from oral cancer patient’s saliva was 99% identical to *Fn polymorphum* by BLAST search.

Supplemental Figure. S6



Supplemental Figure 6
The existence of four major *Fn* subspecies in oral cancer patients' saliva is displayed. Orange highlighted squares show the existence of *Fn* subspecies as indicated.