Cervico-Vaginal Microbiome Dynamics Across HPV-Driven Lesion Stages in Moroccan Women

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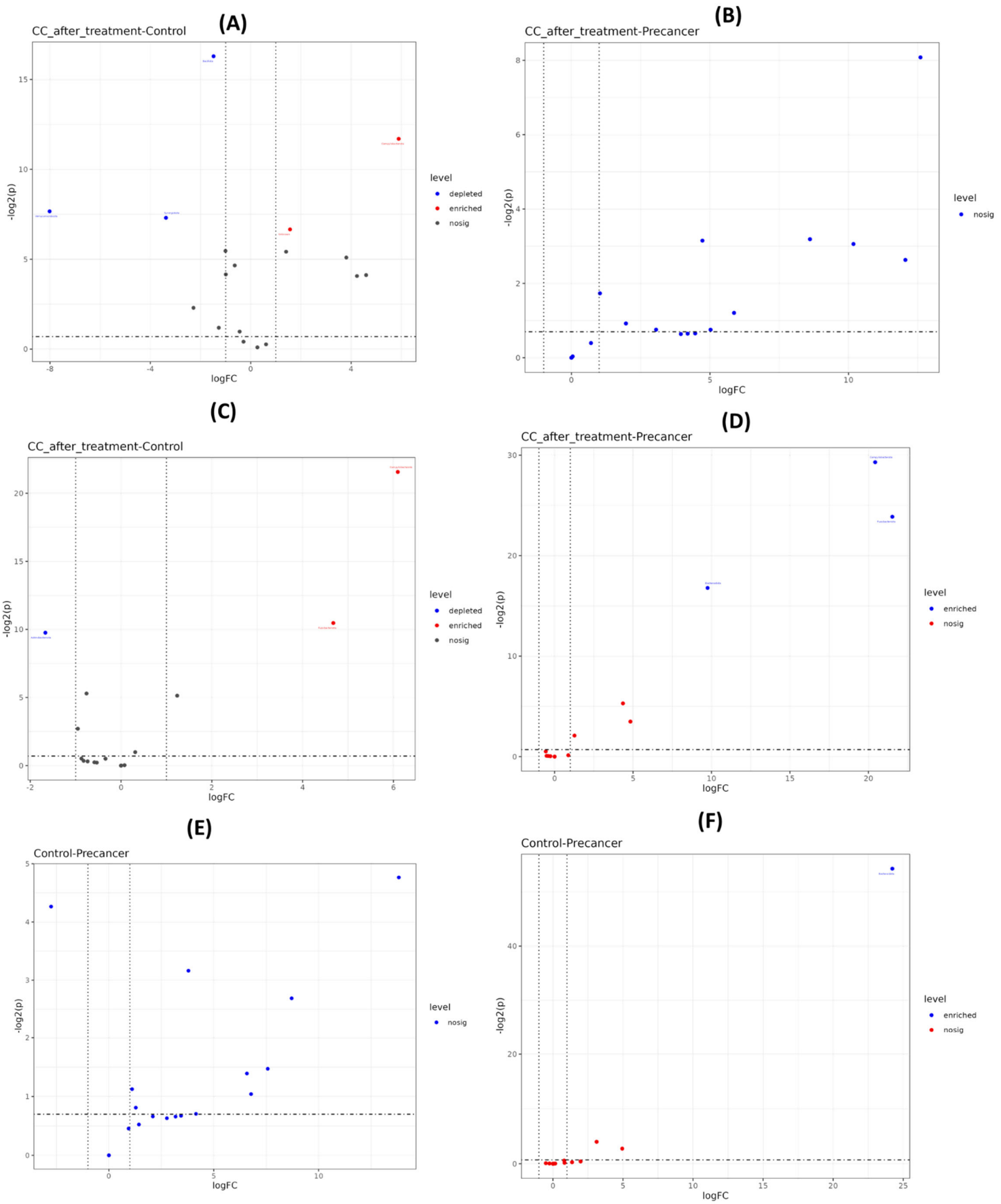
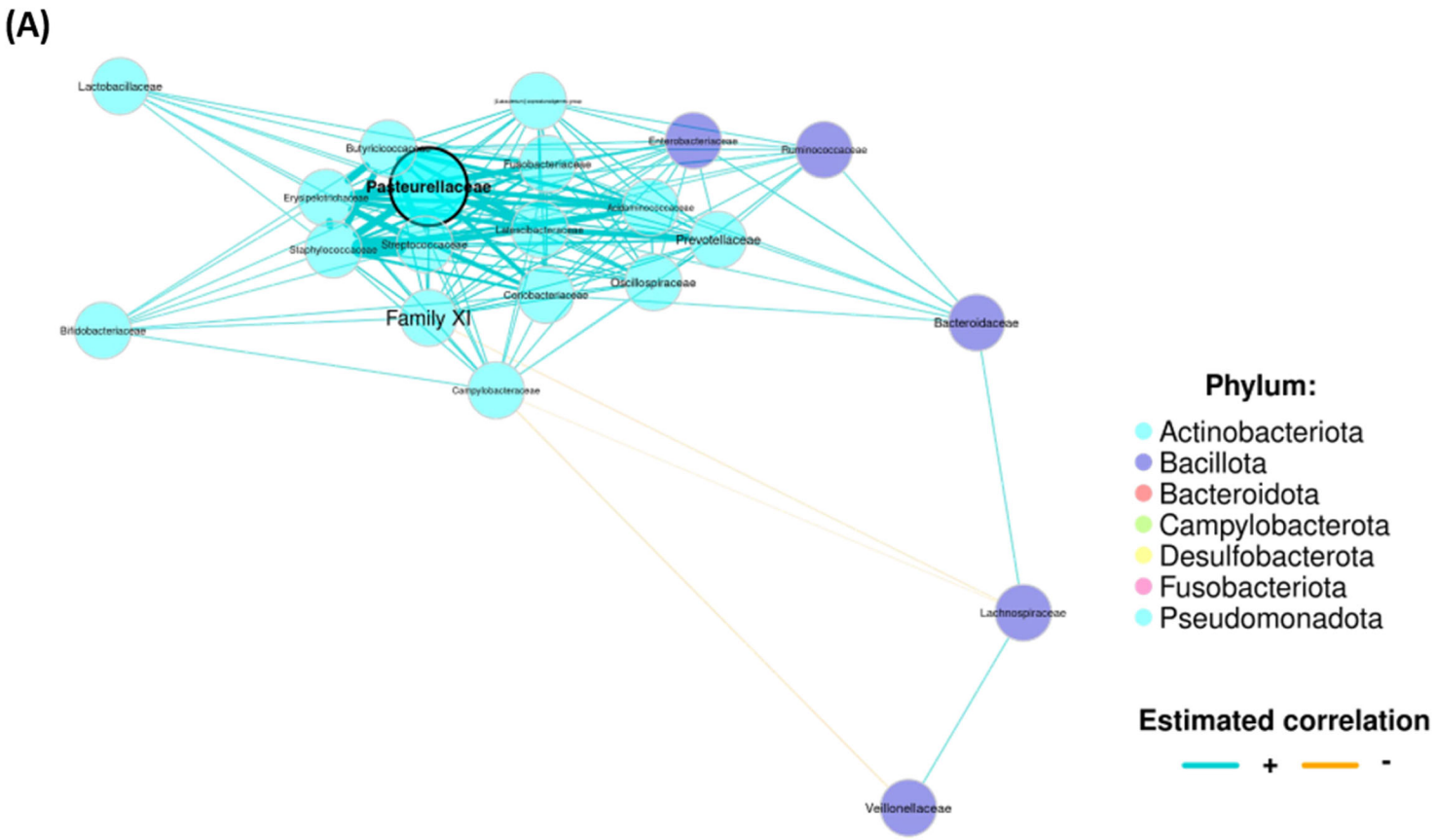
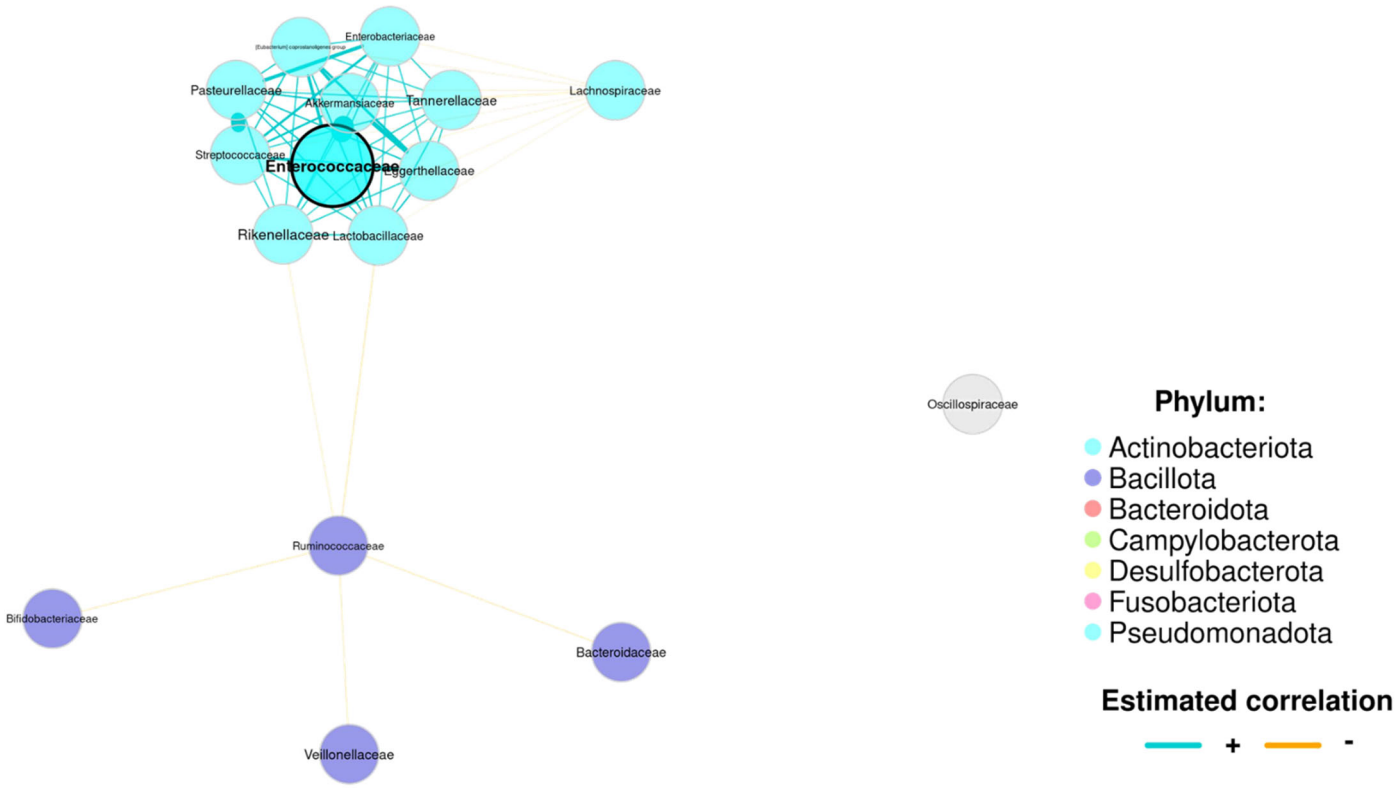


S1. Phylum-level shifts in the cervico-vaginal microbiome revealed by volcano analysis.

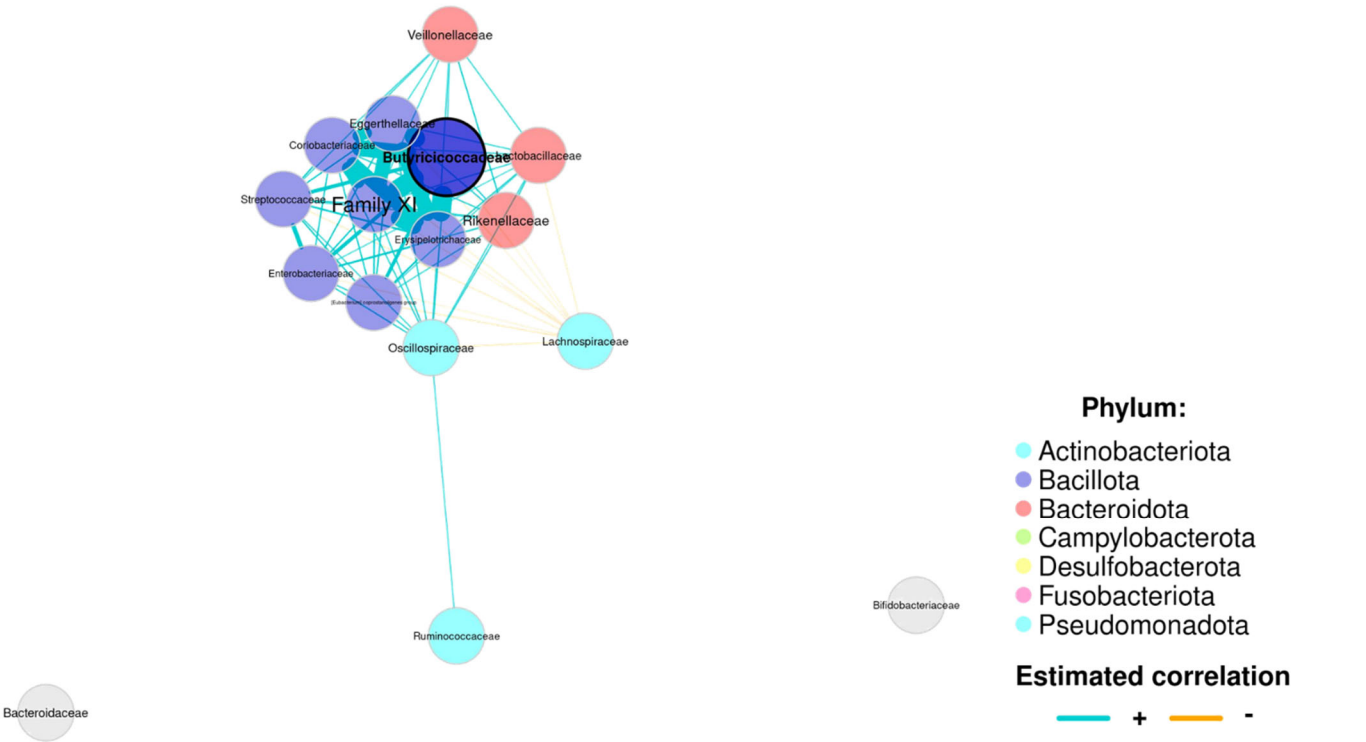
(A): Comparison of post-treatment cervical cancer cases versus healthy controls. (B): Comparison of post-treatment cervical cancer cases versus high-grade precancerous lesion samples. (C): Comparison of healthy controls versus high-grade precancerous lesion samples. (D): Comparison of high-grade precancerous lesion samples versus healthy controls. (E): Comparison of high-grade precancerous lesion samples versus post-treatment cervical cancer cases. (F): Comparison of healthy controls versus post-treatment cervical cancer cases.

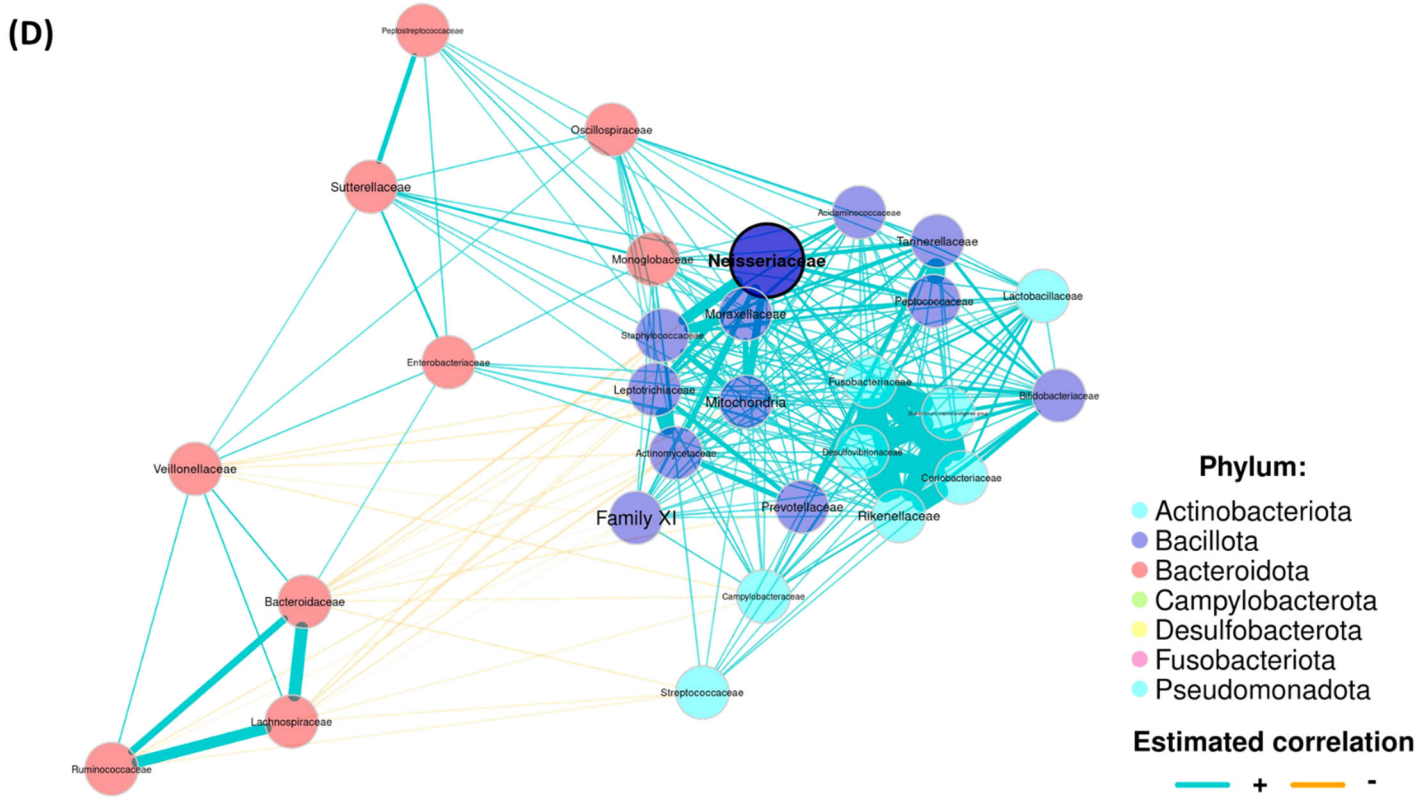


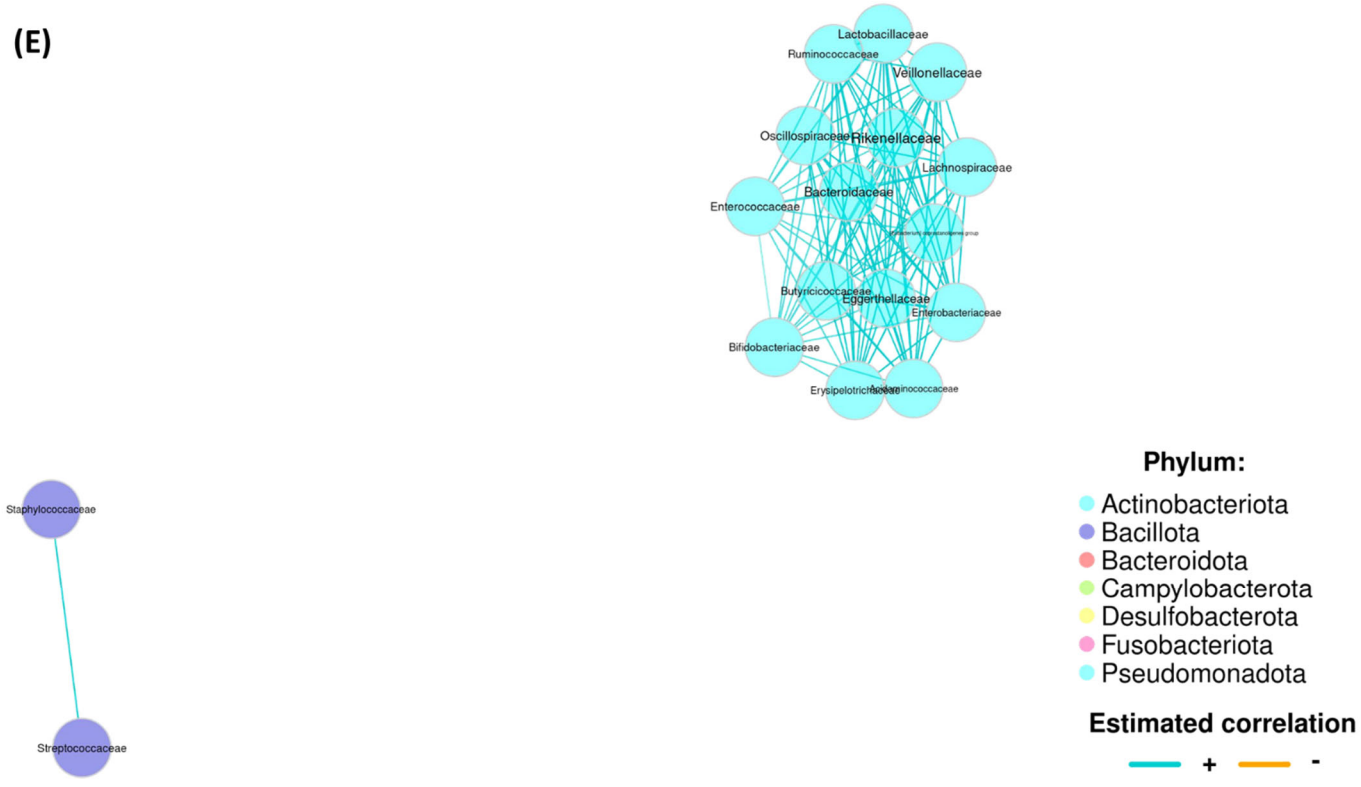
(B)


Enterobacteriaceae
Pasteurellaceae
Akkermansiaceae
Tannerellaceae
Lachnospiraceae
Streptococcaceae
Enterococcaceae
Eggerthellaceae
Rikenellaceae
Lactobacillaceae
Ruminococcaceae
Bifidobacteriaceae
Bacteroidaceae
Veillonellaceae
Oscillospiraceae
Phylum:
Actinobacteriota
Bacillota
Bacteroidota
Campylobacterota
Desulfobacterota
Fusobacteriota
Pseudomonadota
Estimated correlation
+
-

(C)


Veillonellaceae
Eggerthellaceae
Coriobacteriaceae
Butyricicoccaceae
Lactobacillaceae
Streptococcaceae
Family XI
Rikenellaceae
Erysipelotrichaceae
Enterobacteriaceae
Oscillospiraceae
Lachnospiraceae
Ruminococcaceae
Bacteroidaceae
Bifidobacteriaceae
Phylum:
Actinobacteriota
Bacillota
Bacteroidota
Campylobacterota
Desulfobacterota
Fusobacteriota
Pseudomonadota
Estimated correlation
+
-


(D)
Peptostreptococcaceae
Oscillospiraceae
Sutterellaceae
Acidaminococcaceae
Tannerellaceae
Monoglobaceae
Neisseriaceae
Peptococcaceae
Lactobacillaceae
Moraxellaceae
Staphylococcaceae
Enterobacteriaceae
Fusobacteriaceae
Leptotrichiaceae
Mitochondria
Bifidobacteriaceae
Actinomycetaceae
Desulfovibrionaceae
Veillonellaceae
Coriobacteriaceae
Family XI
Prevotellaceae
Rikenellaceae
Campylobacteraceae
Bacteroidaceae
Streptococcaceae
Lachnospiraceae
Ruminococcaceae
Phylum:
Actinobacteriota
Bacillota
Bacteroidota
Campylobacterota
Desulfobacterota
Fusobacteriota
Pseudomonadota
Estimated correlation
+
-


(E)
Lactobacillaceae
Ruminococcaceae
Veillonellaceae
Oscillospiraceae
Rikenellaceae
Lachnospiraceae
Bacteroidaceae
Enterococcaceae
Butyricicoccaceae
Eggerthellaceae
Enterobacteriaceae
Bifidobacteriaceae
Staphylococcaceae
Streptococcaceae
Phylum:
Actinobacteriota
Bacillota
Bacteroidota
Campylobacterota
Desulfobacterota
Fusobacteriota
Pseudomonadota
Estimated correlation
+
-

S2. Co-occurrence network diagram of core vaginal microbiota across disease and HPV status. (A): Network in cervical cancer cases after radiochemotherapy. (B): Network in healthy control samples. (C): Network in high-grade precancerous lesion samples. (D): Network in HPV-positive women. (E): Network in HPV-negative women.

S3: Multiple logistic regression analysis of factors associated with clinical group status (reference group: Healthy Controls)

Predictor Variable	**Odds Ratio (OR)**	**95% Confidence Interval**	**p-value**
Age > 56 years	2.85	1.54–5.28	0.001 **
Married	0.52	0.30–0.91	0.023 *
Illiterate	2.97	1.54–5.72	0.001 **
Post-menopausal	3.14	1.62–6.10	0.001 **
Early sexual debut (<18 y)	4.67	2.43–9.00	<0.001 **
Prior STIs	1.95	1.02–3.72	0.043 *
Smoking	3.32	1.63–6.78	0.001 **
Urban/Suburban residence	0.41	0.19–0.90	0.027 *