

Supplementary Material

Supplementary Table 1: Antibacterial antibiotic exposures between days -7 and +28

Antibiotic	Antibiotic category (Fig. 1a)	# Patients exposed
Levofloxacin	FQN	51
Trimethoprim-Sulfamethoxazole	TMP-SMX	46
Cefepime	Ceph 3+	41
Vancomycin (IV)	Vancomycin (IV)	20
Amoxicillin	PCN/Ceph 1-2	12
Ceftriaxone	Ceph 3+	11
Dapsone	Other	11
Piperacillin-Tazobactam	Anti-anaerobic	10
Meropenem	Anti-anaerobic	8
Metronidazole	Anti-anaerobic	7
Penicillin VK	PCN/Ceph 1-2	7
Azithromycin	Other	6
Amoxicillin-Clavulanic acid	Anti-anaerobic	6
Vancomycin (oral)	Vancomycin (oral)	5
Cefpodoxime	Ceph 3+	4
Cefazolin	PCN/Ceph 1-2	4
Ciprofloxacin	FQN	3
Doxycycline	Other	3
Nitrofurantoin	Other	2
Cephalexin	PCN/Ceph 1-2	2
Cefdinir	Ceph 3+	1
Atovaquone	Other	1
Aztreonam	Other	1

Ceph 1-2: first or second generation cephalosporins; Ceph 3+: third or higher generation cephalosporins; FQN: fluoroquinolones; PCN: penicillins; TMP-SMX: trimethoprim-sulfamethoxazole

Supplementary Table 2: Salivary flow rate after vs. before transplant

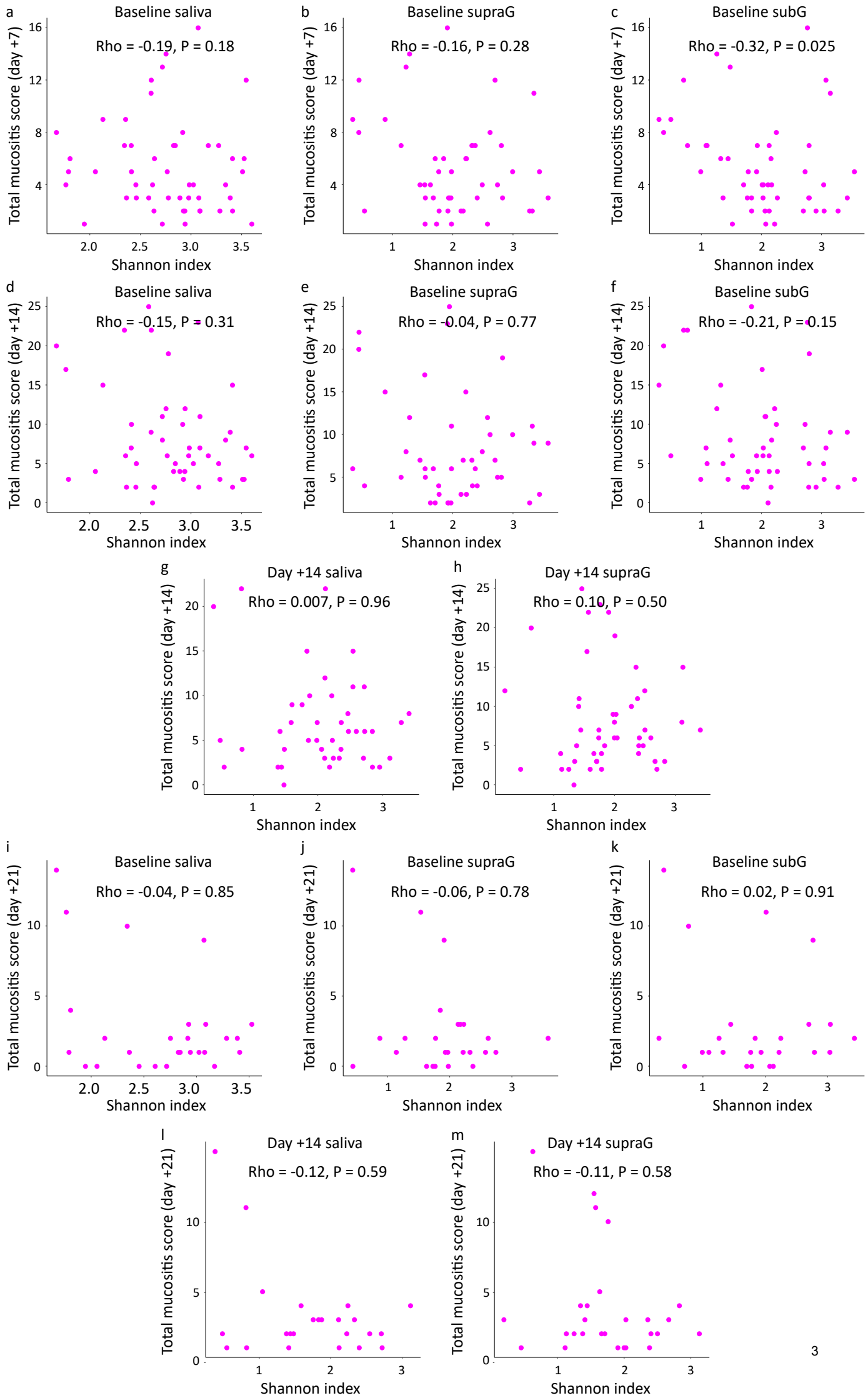
Timepoint vs. baseline	Coefficient (95%CI)	P
Baseline 0.40 (0.06-4.00) ml/min	NA	NA
Day +14 0.33 (0.01-2.07) ml/min	-0.15 (-0.32 to 0.02)	0.08
Day +28 0.33 (0.03-2.34) ml/min	-0.16 (-0.33 to 0.005)	0.06
Day +84 0.32 (0.04-1.25) ml/min	-0.30 (-0.48 to -0.11)	0.001

Results are from a linear mixed model, with patient number as a random effect, timepoint as the fixed effect, and salivary flow rate (ml/min) as the outcome variable. Median (range) flow rate at each timepoint is shown.

Supplementary Table 3: Multivariable analysis of day +14 total mucositis score

Variable	Coefficient (95%CI)	P
Baseline <i>O. asaccharolyticum</i> (presence vs. absence) Present, 22 (46%) Absent, 26 (54%)	4.44 (0.30 to 8.58)	0.036
Day +14 salivary flow rate Median (range), 0.37 (0.04-2.34) ml/min	0.72 (-3.36 to 4.79)	0.72
Sex (male vs. female) Male, 25 (52%) Female, 23 (48%)	-0.55 (-4.70 to 3.61)	0.79
Conditioning (reduced intensity vs. myeloablative) Reduced intensity, 4 (8%) Myeloablative, 44 (92%)	-4.20 (-10.93 to 2.53)	0.21

Results are from a linear regression model with sex, conditioning intensity, baseline salivary *O. asaccharolyticum* presence/absence, and day +14 salivary flow rate as predictors of day +14 total mucositis score



Supplementary Figure 1: Relationship between microbiota diversity and oral mucositis severity

(a-c) Baseline diversity vs. total mucositis score at day +7. **(d-f)** Baseline diversity vs. total mucositis score at day +14. **(g-h)** Day +14 diversity vs. total mucositis score at day +14. **(i-k)** Baseline diversity vs. total mucositis score at day +21. **(l-m)** Day +14 diversity vs. total mucositis score at day +21. Diversity is measured by the Shannon's index. Spearman's correlation coefficients and P values are shown.