Supplementary Table S1. Components of chemically defined media (CDM) for limiting *S. aureus* growth based on previous experiments for growing staphylococci slime production

Ingredients	Concentration (mg/L)	Concentration (mmol/L)
Group 1 (18 Amino acids)		
L- Alanine	100	1.12
L- Arginine	100	0.57
L- Aspartic acid	150	1.13
L- Cystine	50	0.21
L- Glutamic acid	150	1.02
L- Glycine	100	1.33
L- Histidine	100	0.65
L- Isoleucine	150	1.14
L- Leucine	150	1.14
L- Lysine	100	0.68
L- Methionine	100	0.67
L- Phenylalanine	100	0.6
L- Proline	150	1.3
L- Serine	100	0.95
L- Threonine	150	1.26
L- Tryptophan	100	0.49
L- Tyrosine	100	0.55
L- Valine	150	1.28
Group 2 (Glucose)		
Glucose	2500	13.9
Group 3 (Salts+minerals)		
MgSO4	500	4.15
Na2HPO4	10000	70.44
KH2PO4	3000	22.04
CaCl2	10	0.09
MnCl2	5	0.04
(NH4)2SO4	6	0.05
Group 4 (Vitamins)		
Biotin	1	0.004
Nicotinic acid	2	0.016
D- Pantothenic acid, Ca salt	2	0.004
Pyridoxal	4	0.016
Riboflavin	2	0.005
Thiamin	2	0.007

(1) $$\mu_{max} = 2.303\left(\frac{log_{10}N_2 - log_{10}N_1}{t_1 - t_0}\right)$$

Supplementary Equation S1. Monods equation: the mathematical model which relates the growth rate of bacteria to the concentration of a limiting nutrient

μ_{max} = maximum growth rate (h^{-1}), N = number of CFU at timepoint, t = timepoint (h)

(2) $$T_g = \frac{ln2}{D}$$

$$D = \frac{F}{V}$$

Supplementary Equation S2. Derivations of equations for determining the parameters for continuous derivations of flowrate calculations. At steady state growth, the dilution rate is equal to the growth rate. The generation time and flowrate can be determined at a specific growth rate.

T_g = generation time (h^{-1}), μ_{max} = maximum growth rate (h^{-1}), D = dilution rate (h^{-1}), F = flow rate ($mL.h^{-1}$), V = volume of vessel (mL),