

1 Supplementary table I. Elements of matrix W_1 and vector B_1 (presented in the bias row)

Bacterial strain	Neurons in the hidden layer								
	1	2	3	4	5	6	7	8	9
Time, t	-8.060	-3.056	-8.083	-240.451	-6.441	-2.886	9.583	-151.800	-61.978
<i>P. stutzeri</i> reference	-19.955	60.389	-1.857	-56.161	-25.190	-14.676	16.994	16.207	-43.900
I ₁	76.772	-17.435	-2.983	79.016	-1.765	-125.222	105.231	-20.917	39.276
I ₂	-162.681	-10.151	-153.951	-102.577	0.123	-11.508	-76.774	52.125	-131.417
I ₃	74.277	-13.044	18.997	72.205	84.483	56.607	83.418	108.835	-0.721
II ₁	15.216	-13.599	41.603	26.247	-41.955	95.367	8.111	50.492	31.202
II ₂	52.398	-13.966	17.734	37.868	72.054	61.504	15.425	112.229	62.959
II ₃	-117.950	-18.555	-16.736	-40.118	-2.991	-117.067	-97.497	-26.389	-156.557
II ₄	52.764	-13.966	19.035	37.945	71.869	60.900	15.460	112.204	61.310
II ₅	52.808	-13.966	18.809	37.887	71.758	61.004	15.454	112.326	61.336
II ₆	-27.576	-139.406	-12.356	-38.778	-1.549	-135.303	-60.983	-56.600	-143.763
II ₇	-24.658	-15.005	-9.690	-110.539	-3.757	-132.803	-95.154	-61.992	31.221
II ₈	-14.326	-11.842	65.959	-40.972	4.683	93.601	25.623	115.893	-93.808
II ₉	-31.590	-12.349	-33.657	-133.964	-94.737	-14.172	7.546	-17.181	-28.939
II ₁₀	-83.902	23.639	-16.693	-39.724	-1.508	-10.071	-55.427	-24.630	-80.252
III ₁	-24.988	77.177	-9.800	5.423	10.604	70.631	65.930	-21.692	-27.065
III ₂	-124.817	-12.894	-164.926	-43.941	-31.740	-13.866	2.639	-120.724	-33.122
III ₃	-18.354	-17.690	-3.122	48.193	-1.652	-50.946	115.017	-21.058	32.302
III ₄	-18.151	-13.172	-2.957	-39.693	-73.207	-14.226	91.614	-23.751	32.182
III ₅	-26.001	43.590	-10.819	36.295	1.446	67.259	-79.363	-22.115	1.764
III ₆	-22.137	-14.377	-6.936	29.393	-2.141	-15.158	-74.231	-21.693	15.479
III ₇	-27.923	-14.030	-12.703	-38.991	-1.956	-15.225	6.040	-102.740	-32.128
III ₈	86.504	-19.498	-3.073	-87.146	-0.402	-31.740	10.424	3.104	-30.388
III ₉	-25.396	-17.160	-10.099	-36.782	0.429	-17.259	2.260	-129.681	-31.195
III ₁₀	-22.322	5.571	-7.135	-74.942	-1.692	-4.950	-51.726	16.017	-84.161
III ₁₁	101.213	-14.362	95.137	-94.960	-1.016	69.595	-33.546	-36.715	-96.027
III ₁₂	-18.156	-13.264	-2.936	-39.690	-56.783	-14.298	84.796	-23.747	32.197
III ₁₃	38.730	75.189	13.709	83.752	0.581	36.842	14.525	55.079	112.460
III ₁₄	76.029	89.695	64.995	-12.202	-1.988	-11.879	14.043	8.869	32.893
III ₁₅	89.796	36.326	-3.432	-38.570	-1.549	-14.916	18.731	-77.948	76.466
III ₁₆	71.585	-14.486	74.820	81.630	1.780	-16.964	19.703	-59.707	-29.913
III ₁₇	-19.770	35.900	-4.703	40.251	-0.702	-15.084	10.337	-22.885	-5.511
III ₁₈	12.184	34.407	3.831	-39.798	-1.764	-9.818	12.522	-22.783	107.995
III ₁₉	-18.752	-14.980	-3.546	82.925	2.960	-16.935	-104.478	-49.993	74.834
III ₂₀	-24.776	-9.279	-9.584	-17.196	-93.538	-10.830	-98.788	-20.577	1.224
IV ₁	64.237	46.458	-2.863	110.351	1.767	-13.184	9.672	53.704	79.575
IV ₂	24.952	-72.255	64.173	94.128	94.407	47.757	7.798	114.620	101.872
IV ₃	-20.172	61.938	-5.037	81.577	73.188	47.190	83.176	-21.688	34.167
IV ₄	-146.296	-14.984	-111.953	-129.793	-4.073	-15.835	-39.801	-24.600	-121.207
IV ₅	-30.642	-16.746	-83.525	-105.427	-36.725	-75.450	-90.584	53.528	0.287
IV ₆	47.456	-14.419	69.794	114.049	89.687	63.434	14.110	55.211	35.087
IV ₇	42.868	33.912	1.774	78.454	-48.024	28.999	16.475	-20.448	36.312
IV ₈	-14.037	-13.601	69.951	59.425	-62.017	-13.343	14.841	-20.452	33.753
IV ₉	65.218	6.964	0.320	78.267	-85.979	67.999	17.375	-20.441	63.523
IV ₁₀	67.128	-14.416	77.973	84.892	99.674	40.962	14.566	74.775	7.036
Bias	26.651	16.188	11.476	38.274	1.170	16.970	-18.276	22.028	28.511

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3 Supplementary table II. Elements of matrix W_2 and vector B_2 (presented in the bias column)

Parameter	Neurons in the hidden layer									Bias
	1	2	3	4	5	6	7	8	9	
Biomass production	80.782	-3.228	-80.304	0.441	0.013	2.628	-0.110	-0.523	-0.441	0.995
N ₂ gas production	126.663	210.131	39.661	-337.403	186.352	-217.921	-181.651	-142.567	345.994	3.709
Nitrate concentration	-0.634	-0.026	0.365	-5.180	5.594	0.230	0.217	6.497	0.067	0.296
Nitrite concentration	-1.417	4.722	6.283	-7.079	3.392	-4.732	-2.010	6.514	-2.400	0.006
Nitrite formation	-263.742	-2.946	266.219	-8.670	0.519	2.982	128.980	-0.518	6.372	0.000
Ammonia formation	3.992	-0.033	-3.992	0.027	-0.005	0.035	0.005	-0.007	-0.023	0.001