

Parameter	Definition
c	Concentration of oxygen, mol
c_{air}	Concentration of oxygen in air, mol
Ca_τ	Capillary number
D	Diffusivity, m^2s^{-1}
$\varepsilon(\equiv h_0/L)$	Aspect ratio
Fr_τ	Froude number
g	Gravitational acceleration
h_0	Container height, m
H_τ	Chemotaxis head
\mathbf{k}	Vertical unit vector upwards
L	Length of the container, m
Le_τ	Lewis number
n	Density of cell, m^{-3}
\mathbf{n}	Unit outward normal vector
n_0	Initial density of cell, m^{-3}
\bar{n}_0	Characteristic cell density, m^{-3}
p	Pressure, kg ms^{-2}
Pr_τ	Prandtl number
Ra_τ	Rayleigh number
S_τ	Dimensionless chemotaxis sensitivity
S_{dim}	Dimensional chemotaxis sensitivity, $\text{m}^5\text{s}^{-1}\text{mol}^{-1}$
t	Time, s
$\mathbf{t}_1, \mathbf{t}_2$	Unit outward tangential vectors
$\mathbf{u} = (u, v, w)$	Velocity vector, ms^{-1}
V_b	Volume of the bacterium, m^3
$\mathbf{x} = (x, y, z)$	Coordinate axes, m
Greek symbols	
κ	Bacterium oxygen consumption rate, s^{-1}
μ	Dynamic viscosity, $\text{kg m}^{-1}\text{s}^{-1}$
ν	Kinematic viscosity, m^2s^{-1}
ρ	Fluid density, kg m^{-3}
ρ_b	Bacterium volumetric mass density, kg m^{-3}
σ	Surface tension, N m^{-1}
$\bar{\tau}$	Stress tensor for fluid
Subscripts	
\cdot_b	Bacterium
\cdot_O	Oxygen
\cdot_τ	Taxis

TABLE 1. Nomenclature description.