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LIST OF SYMBOLS

SYMBOL		UNIT
A_1	The amplitude of the oscillating component	
c_1	The acceleration constants for personal knowledge	
c_2	The acceleration constants for social knowledge	
C_A	The concentration of the solute A	
D_A	The diffusion coefficient of solute A	m^2/s
f_p	The pulse frequency	
J_0	The Bessel function zero order of the first kind	
m	The consistency index	
n	The power law index	
NRTime	The nanorobot execution time	s
PRange	The nanorobot perception ability	μm
r	The vertical position in the vessel	μm
R	The vessel radius	μm
r_1	The random number between 0 to 1	
r_2	The random number between 0 to 1	
R_p	The plug core radius	μm
t	Time	s
V	The blood velocity	mm/s
VMax	The maximum velocity of nanorobots	mm/s
$v(t)$	The current velocity at time *t*	
$v(t+1)$	The new velocity	
x	the distance from the activated nanorobot at the measurement position	
$x(t)$	The current Position at time *t*	
$x_i(t)$	Position of nanorobot/particle in dimensions at time *t*	
x_{lbest}	The local best position	
x_{pbest}	The personal best position	
χ	The constriction coefficient	
γ	The shear rate	
τ	The shear stress	Pa
τ_w	The shear stress at wall	Pa
τ_y	The yield stress	Pa
ν	The viscosity	
$-\frac{dP}{dx}$	The pressure gradient.	
ρ	The blood density	

LIST OF TECHNICAL VOCABULARY AND ABBREVIATIONS

ABC	=	Artificial bee colony
ACO	=	Ant colony optimization
ADP	=	Adenosine diphosphate
AFM	=	an atomic force microscopy
BSA	=	bovine serum albumin
H-B model	=	Herchel-Bulkley model
HRP	=	horseradish peroxidase
PA	=	polystyrene microbeads
PSO	=	Particle swarm optimization technique
SI	=	swarm intelligence
ssDNA	=	the single stranded DNA
TEM	=	a transmission electron microscopy
TRE	=	target-responsive encapsulation
vWF	=	von Willebrand factor