Parameter	*Units*	*Values*	*Description*
N_A	molecules	10	Number of each agent type
E_N	molecules	10^4	Environment resources available in bulk
k_{on}	$time^{-1}$	0.005	Basic rate of association with the lattice
k_{off}	$time^{-1}$	0.001	Dissociation from the lattice
k_{coop}	$time^{-1} \cdot molecules^{-1}$	1	Resource-mediated association with lattice
$D_{lattice}$	$length \cdot time^{-1}$	0.001	Spatial diffusion on the lattice
$k_{x\text{-}y}$	$time^{-1} \cdot molecules^{-1}$	0.1	Agent catalysis of resource conversion
k_{form}	$time^{-1} \cdot molecules^{-1}$	0.1	Formation of complex with lattice bound, adjacent agents
k_{decay}	$time^{-1}$	0.001	Dissociation of agent complexes
L_xL_y	$length \cdot length$	10^4	Area of lattice surface

Table S1. Parameters of the lattice model. The units for each parameter, the standard value used in simulations, and the role of the parameter. Molecules are a count of agents or resources. Time is in arbitrary simulation units. Length is in units of a lattice site.