Instruction	Description
send-message	Packages up two numbers from the cell's registers as a message and sends them to the neighboring cell that the focal cell is facing
send-message-check-task	Packages up two numbers from the cell's registers as a message and sends them to the neighboring cell that the focal cell is facing. Also checks if the message contains a task result. If so, the cell performs that task.
receive-message	Reads a message (if any has been received) by putting the two numbers in the message into the cell's registers
broadcast-message	Sends a message to all neighboring cells
broadcast-message-check-task	Packages up two numbers from the cell's registers as a message and sends them to all the neighboring cells of the focal cell. Also checks if the message contains a task result. If so, the cell performs that task.
rotate-left-one	Rotates the facing of a cell counterclockwise by 90° (cells are embedded within a regular square lattice with neighbors in the cardinal directions)
rotate-right-one	Rotates the facing of a cell clockwise by 90°
tissue-accretion	Produces a new cell in the same organism. Works using the standard Avida copy loop. The daughter cell is placed in a neighboring space that the parent cell is facing if it is empty (i.e., cells cannot overwrite other cells).
fixed-input	Takes in two numbers as input (these inputs are fixed).
donate-res-to-organism	Gives the resources collected by the cell to the organism proper. This must be done for the organism to be able to use resources for propagule production.
produce-propagule	Produces a propagule if sufficient resources have been collected and the copy loop has executed properly. A propagule eligible cell is selected at random from the organism. It is copied to initiate a new organism with this single propagule cell. The new organism replaces an organism selected at random within the population.
propagule-ineligible	Marks the cell as propagule ineligible. All cells start propagule eligible. The status is inherited from a parent cell to its daughter. Once executed, there is no way for a cell (or its descendants) to reverse this status in order to become propagule eligible again.
if-propagule-eligible	Executes the next instruction if the cell is propagule eligible
if-propagule-ineligible	Executes the next instruction if the cell is propagule ineligible
if-res-more-than-thresh	Executes the next instruction if the organism has more resources than are required for propagule production
if-res-less-than-thresh	Executes the next instruction if the organism has fewer resources than are required for propagule production