I. Avida instruction set

Each position in the genome sequence of a digital organism is one of 26 possible instructions. The table below shows the alphabetical code for each instruction, its mnemonic, and a brief description of its function.

(a)	`nop-A`	No-operation instruction; modifies other instructions
(b)	`nop-B`	No-operation instruction; modifies other instructions
(c)	`nop-C`	No-operation instruction; modifies other instructions
(d)	`if-n-equ`	Test if two registers contain equal values
(e)	`if-less`	Test if one register contains a lesser value than another
(f)	`pop`	Remove a number from a stack and place it in a register
(g)	`push`	Copy the value of a register onto the top of a stack
(h)	`swap-stk`	Toggle the active stack
(i)	`swap`	Swap the contents of two specified registers
(j)	`shift-r`	Shift all the bits on a register one to the right
(k)	`shift-l`	Shift all the bits on a register one to the left
(l)	`inc`	Increment a register
(m)	`dec`	Decrement a register
(n)	`add`	Calculate the sum of the values in two registers
(o)	`sub`	Calculate the difference between the values in two registers
(p)	`nand`	Perform a bitwise NAND on the values in two registers
(q)	`IO`	Output the value in a register and replace with a new input
(r)	`h-alloc`	Allocate memory for an offspring
(s)	`h-divide`	Divide off an offspring contained in memory (specified by heads)
(t)	`h-copy`	Make a copy of a single instruction in memory (specified by heads)
(u)	`h-search`	Find a pattern of nop-instruction in the genome
(v)	`mov-head`	Move a head to point to the same position as the flow-head
(w)	`jmp-head`	Move a head by a fixed amount stored in a register
(x)	`get-head`	Write the position of a specified head into a register
(y)	`if-label`	Test if a specified pattern of nops has recently been copied
(z)	`set-flow`	Move the flow-head to a specified position in memory

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