

Can we recode the human genome to resist viruses?

[T]wo years in, an ambitious project to synthesize genomes — including human ones — is moving on from its shaky start and plunging in to the practical work of creating better genomes than nature did. As some 200 scientists participating in “Genome Project-write” met in Boston...the group announced its first target: creating cells that could never be infected by viruses, and that perhaps would also be resistant to other killers.

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Resistance to viruses and more would be accomplished by a process called recoding, which depends on the fact that the genetic code — which sequences of DNA letters “spell” which amino acids — is redundant. Each three-letter string of DNA letters, called a codon, codes for the production of a particular amino acid.

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Why bother? Because viruses’ genes include the redundant codons. If a virus entered a cell and, as is its wont, tried to take over the cell’s genetic machinery to produce more viruses, [participant Jef] Boeke said, “it would get stuck.” It wouldn’t be able to get the cell to produce viral proteins and therefore viruses — which is what happens with a viral infection. “That’s recoding for viral resistance.”

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If recoded human cells were resistant to HIV, hepatitis, influenza, and every other virus, they could be the basis for stem cell therapeutics.

Read full, original post: [Genome ‘writers’ set their first goal: recoding human cells to resist viruses](#)