Field of Genes

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Every day seems to bring a newly discovered link between genes and diabetes, heart disease, cancer or hepatitis. Aside from fueling all those “know your genes” websites, genetic discoveries may someday produce treatments for many diseases. Always on the cutting edge, people with HIV have already been there and have done that. In the past year, two useful advances in HIV medicine have emerged from the science of human genetics.

The player: CCR5, a protein, runs a gateway that HIV uses to enter CD4 cells. Some people inherit two copies of a genetic variation, the CCR5 delta-32 deletion, which makes it difficult to contract HIV. People who inherit just one copy of the variant gene can contract the virus but progress much more slowly toward AIDS.

The game: Discovering this genetic link led to the development of the new class of oral HIV meds, entry inhibitors. Selzentry (maraviroc) was the first of these to get FDA approval; it blocks HIV from attaching to CD4 cells.

The player: The genetic marker HLA-B*5701 is also linked to how fast HIV progresses; people with this variant progress slowly once they have HIV.

The game: Discovering HLA-B*5701 also helped identify people who will develop a hypersensitivity reaction to the HIV drug abacavir (Ziagen, also found in Epzicom and Trizivir). Genetic screening now helps identify such people, so that they can avoid the drug.

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