How evolutionary theory may complicate CRISPR as cancer fighting tool

Using guide RNAs, CRISPR-Cas9 can target and inactivate any gene in a living cell. That makes a powerful tool for loss-of-function analyses of particular genes' roles in disease.

…

But CRISPR-Cas9's promise becomes less certain when it comes to cancers, [Ewald] cautioned.

…

[In addition, o]ne concern is the fact that genes are frequently pleiotropic, affecting multiple molecular pathways. Just because a gene promotes tumor growth does not imply that it lacks other, beneficial effects.

…

["]But the problem is that if you're putting a gene into an organism that has undergone evolutionary selection pressures that have adjusted all of a gene's pleiotropic effects, then you affect those, too," Ewald cautioned.

…

It is open to question, however, whether the next big genome-editing breakthrough will come from systemically screening natural CRISPR and CRISPR-like systems.

"It is certainly hard to predict whether new gene editing systems will emerge from very broad studies of natural CRISPR systems," Dr. [Dana] Carroll said. "I'm sure additional variants will turn up, but perhaps nothing dramatically different from what we've seen already."

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: The Evolutionary Implications of CRISPR-Cas9 for Clinical Oncology