Cancer cells are ‘cheaters’ in Darwin’s vision of evolution

Maybe it was in “some warm little pond,” Charles Darwin speculated in 1871, that life on Earth began. A few simple chemicals sloshed together and formed complex molecules. These, over great stretches of time, joined in various combinations, eventually giving rise to the first living cell: a self-sustaining bag of chemistry capable of dividing and spawning copies of itself.

While scientists still debate the specifics, most subscribe to some version of what Darwin suggested — genesis as a fortuitous chemical happenstance. But the story of how living protoplasm emerged from lifeless matter may also help explain something darker: the origin of cancer.

As the primordial cells mutated and evolved, ruthlessly competing for nutrients, some stumbled upon a different course. They cooperated instead, sharing resources and responsibilities and so giving rise to multicellular creatures — plants, animals and eventually us.

But inevitably, there are cheaters: A cell breaks loose from the interlocking constraints and begins selfishly multiplying and expanding its territory, reverting to the free-for-all of Darwin’s pond. And so cancer begins.

Although we are getting better at preventing or controlling these rebellions, cancer is an inescapable consequence of multicellularity. A fascinating review, published last month in Philosophical Transactions B, shows how cancer and similar kinds of cellular cheating arise not only in mammals, birds, reptiles, fish, insects and other animals, but also in plants, fungi — in most, if not all, multicellular organisms.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: Cellular ‘Cheaters’ Give Rise to Cancer