Merging man and machine: Tiny DNA nanomachines control biology, fight cancer

Chemistry isn't king when it comes to governing our bodies; physical forces are similarly powerful. The problem is how to tap into them.

In a new perspectives article in Science, Dr. Khalid Salaita and graduate student Aaron Blanchard from Emory University in Atlanta point to DNA as the solution. The team painted a futuristic picture of DNA mechanotechnology, in which we use DNA machines to control our biology. Rather than a toxic chemotherapy drip, for example, a cancer patient may one day be injected with DNA nanodevices that help their immune cells better grab onto—and snuff out—cancerous ones.

"For a long time," said Salaita, "scientists have been good at making micro devices, hundreds of times smaller than the width of a human hair. It's been more challenging to make functional nano devices, thousands of times smaller than that. But using DNA as the component parts is making it possible to build extremely elaborate nano devices because the DNA parts self-assemble."

Just as the steam engine propelled civilization through the first industrial revolution, DNA devices may fundamentally change medicine, biological research, and the development of biomaterials, further merging man and machine.

Read full, original post: DNA Nanomachines Are Opening Medicine to the World of Physics