Artificial Intelligence and Cancers

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Abstract

The recent Phase 3 trial of a customized Moderna mRNA cancer vaccine, along with Merck's Keytruda, to fight melanoma skin cancer, points to possible long-term remission, if not yet a permanent cure. The hope is that future mRNA vaccines can work similarly for other types of cancer, along with Keytruda. This 2026 medical news points toward the general promise of AI in other medical areas, and for understanding cellular life itself. This essay points to emerging synergies between human and AI research tools.

Cancer is our own cells going rogue, leading to many deaths from precious tiny children, to precious aging country superstars. We are all at risk for at least early-stage cancer at any stage of our lives. One of the best things about living in the 2020s is the emergence of high-level medical artificial intelligence. It is good to understand how human research strategies can be accelerated by pattern recognition powers that artificial algorithms do best when linked to large medical databases.

Even though there are many different variants of human cancer, clinical physicians like to break them down into three basic types: slow-growing, medium-rate-growing, and fast-growing.

In the recent past surgeons have had moderate success with such slow-growing cancers as thyroid, and basal cell skin cancer. At the other end of the "speed scale," fast-growing cancers such as childhood forms of leukemia, have shown vulnerability to chemicals that attack fast-growing cells. Certain highly visible charity hospitals choose to showcase recovering children with bald heads.

Because normal hair cells reproduce rapidly, they are vulnerable to the same chemicals that attack certain fast-reproducing body cancers. Fortunately, when chemo therapies for these fast cancers are at least successful for long remissions, the hair of a typical child may regrow as before, while the cancer cells may never reappear.

Doctors have serious clinical challenges dealing with medium-growth-rate cancers that are starting to metastasize. It is very difficult to design a chemo cocktail that attacks cancer cells that reproduce at medium rates similar to our normal cells.**[1]** The list of the most deadly forms of cancer include such medium variants as breast, prostate, lung, pancreatic, liver, and more. Here is the battlefield where the greatest need *and* opportunities for AI present themselves.

Briefly, the greatest emerging challenge for AI-boosted cancer therapy is going from designing relatively long remissions, to mostly cures. Cancer cells are clever enough to evade not-quite-total extinctions through changes in their molecular configurations. We will continue to need an alliance between clinicians and laboratories, with AI searching for, or inventing, new tools to attack the elusive targets.

The super power of medical AI is not in sheer computation, but in creative collaboration with data from human laboratories. To date we have seen hopeful mRNA cancer treatments combining with meds for several mutations.**[2]** That's good, but not good enough for all potential mutations. Even though the human toll of eventual deadly remissions is great, there is also an extended financial burden on the public treasury.

As the old saying goes, an ounce of prevention is worth a pound of cure. Several forms of cancer, such as lung cancer, are coherent with selfish behavior, such as cigarette smoking. We don't need AI to tell us about this link, as conventional medical statistics suffice.

The many discussions we could have about emerging medical AI and humans may turn out similar to our eternal relationships with fire and smoke, both good and bad.

References

[1] https://www.nature.com/articles/s41587-026-03044-0

[2] https://arstechnica.com/health/2026/08/mrna-cancer-vaccine-succeeded-in-phase-3-melanoma-trial-moderna-and-merck-say/