APOLLO

Improving Chemotherapeutic Leukemia Treatment with Nanotech

Vision for the Future

Once Apollo's technology has been implemented around the world in hospitals, we see a world where the threat of cancer is equal to the threat of the common cold. We realize eradicating cancer can be largely impossible but minimizing the harmful aftershocks of both cancer itself and treatment are entirely possible with Apollo Therapeutics.

Thousands are Dying from Leukemia, and Chemo Isn't Really Helping

The most common type and hardest type to treat that impacts adults is chronic lymphocytic leukemia or CLL. Even with democratized treatments like chemotherapy and radiation, they are still ineffective and can even influence more rapid health degredation due to lack of targeted delivery.

38% of leukemia diagnoses in adults is CLL

>50K estimated deaths by CLL in 2020

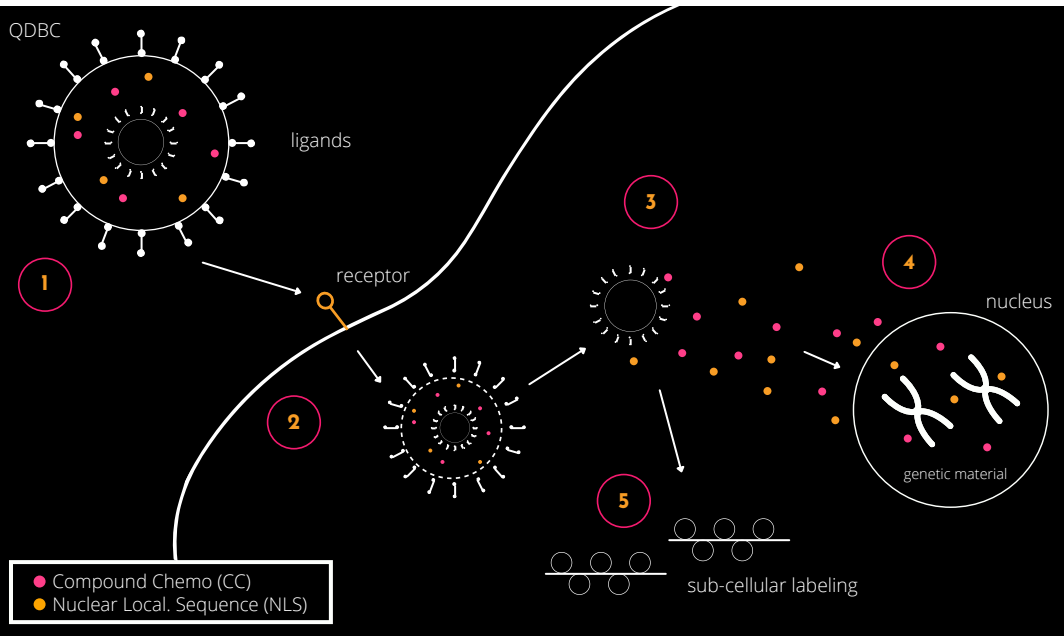
27% of cancer patients die due to their first line of chemotherapy

Using Quantum Dots for Direct Delivery of Chemotherapy

By developing quantum dot (nanoscale crystal structures) bioconjugates, we can create a targeted drug delivery system beneficial for treating the highly specific cancer of chronic lymphocytic leukemia that has affected millions.

Inside the Cell

1. The **quantum dot bioconjugate** (using targeting ligands of ZAP-70 and CD-38 proteins) **identifies and attaches to the receptors** of cancerous lymphocytes.
2. The QDBC then enters the cell where the surrounding liposome is lysed by the enzymes of the cell.
3. The **CC is released**, and using nuclear localization sequences...
4. The CC enters the nucleus where the **cancer cell is neutralized**.
5. The remaining quantum dot attaches itself to a sub-cellular labeling platform to **monitor the progress of treatment.**



Apollo Goes Global and Eco-Friendly

To ensure success, we have curated a 3-phase plan spanning over the next 10 years. We plan to expand to high-risk countries such as Ethiopia, Colombia, and Cyprus due to their high death rate from leukemia. By Phase 2, we plan to have treated 7000 people, all while continuing clinical trials, research, and development.

Through our research, we plan to further develop our quantum dots to be reusable and/or biodegradable by utilizing graphene as a primary material in production. With this technology, we will be able to tackle multiple issues faced during cancer therapy.

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