The Arrival of *cell & gene therapies* in the Epoch of Precision Medicine

After decades of research and debate, cell and gene therapies are now a reality for many patients without viable treatment options. As the epoch of precision medicine continues to develop over the coming decades, a bevy of new cell and gene therapies will gain approval. To help prepare for this new age, check out some exciting highlights in this infographic.

WHAT ARE CELL & GENE THERAPIES?

GENE THERAPY

Gene therapies treat genetic diseases by replacing dysfunctional genes. Genetic information is delivered to patients using "vectors," such as adeno-associated viruses (AAVs), lentiviruses, liposomes, and beyond.

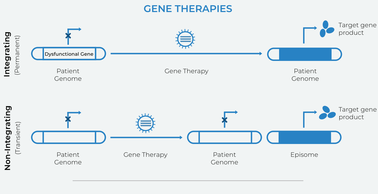
CELL THERAPY

Cell therapies treat diseases with living cells isolated from humans. These cells are commonly modified to increase target recognition and activity.

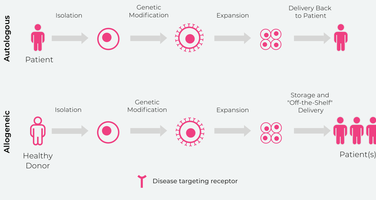
AN INSIDE LOOK AT CELL AND GENE THERAPY STRATEGIES

Unsurprisingly, not all cell and gene therapies are alike. Generally speaking, gene therapies can be categorized as either "integrating" or "non-integrating, while cell therapies can be grouped as either "autologous" or "allogeneic."

GENE THERAPIES



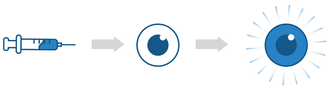
CELL THERAPIES



REAL WORLD APPLICATIONS

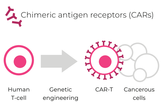
GENE THERAPY

Luxturna®, the first FDA approved gene therapy, used AAV vectors to replace mutant RPE65 genes to improve vision in patients with RPE65-associated blindness.



CELL THERAPY

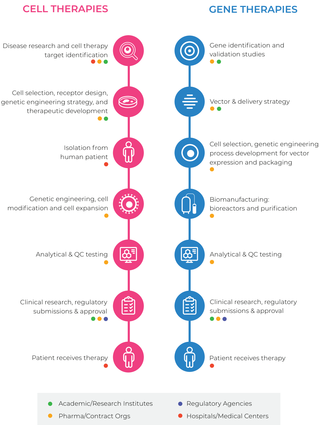
CAR-T Therapies (like, Yescarta®, Abecama®, and Kymriah®) use genetically modified T-cells to display CARs. CARs function as artificial T-cell receptors that target CAR-Ts to specific biomarkers associated with diseases like cancer.



> **That day back in 2010 when i was infused with my CAR-Ts, and my tumor cells disappeared – it meant there was a whole new treatment paradigm.**
>
> -- Doug Olsen, the second CAR-T patient (STAT News)

THE DISCOVERY & DEVELOPMENT PATHWAY

Given their complexity, it truly takes a village to bring a cell or gene therapy to market. Below, we highlight some of the key steps and stakeholders that comprise the vital ecosystem creating these life-changing therapies.



LOOKING AHEAD AT WHAT'S NEXT FOR CELL & GENE THERAPY

23 C&GT Products

As of April 1st, 2022, the US FDA Office of Tissues and Advanced Therapies (OTAT) has approved **23 cell and gene therapy products**. (US FDA OTAT)

2,600 Trials Ongoing

By the middle of 2021, there were nearly 1,200 organizations developing gene, cell, and tissue-based therapeutics worldwide, with **over 2,600 trials ongoing**, including a few hundred in Phase 3. (ARM 2021 H1 Report)

350k Patients

Recent research estimates that about **350,000 patients will have received a cell or gene therapy by 2030**, with between 30 to 60 products approved available. (Quinn et al Value Health 2019)

$25 Billion

The cell and gene therapy market is expected to grow tremendously in the coming decade. Market research groups expect impressive growth—estimated between 24.1% and 33.82% annually—with the cell and gene therapy market potentially reaching **up to $25 Billion in 2027** from $2.6 Billion in 2020. (Cell and Gene Therapy Global Market Report & Global Cell and Gene Therapy Market.)

what's your story?

CG Life will bring it to life and amplify your key contributions to the **Cell and Gene Therapy industry**