All living organisms use DNA replication to grow, heal, defend themselves against infections, reproduce and survive.

This crucial but complex process is prone to error, however, safe-guides are in place to detect and repair errors in the newly formed DNA. Several repair mechanisms co-exist in organisms to preserve DNA integrity even if one of these repair processes shuts down, in a way similar to a generator taking over when the main power fails.

Cancer cells multiply faster than normal cells and therefore rely heavily on these repair mechanisms to survive. Trethera exploits this by targeting multiple pathways involved in DNA replication and DNA repair using rationally-designed combinations of drugs. Trethera’s therapeutic approach is designed to improve efficacy and overcome the limitations of single agent therapies, such as dose-limiting toxicities and development of drug resistance.
Scientific Approach
Trethera discovers and develops innovative drugs that precisely control DNA replication and nucleotide biosynthesis.

While many drug treatments for cancer are based on targeting one molecule as single treatments, there is often a risk that drug resistance will impede their curative effect.

Trethera is adopting a fundamentally different approach, simultaneously inhibiting several targets by using a combination therapy of multiple drugs at the beginning of treatment.

Trethera’s drug discovery programs leverage a validated platform developed in the laboratory of Dr. Caius Radu at UCLA. The platform comprises analytical tools and methods to dissect nucleotide metabolic pathways and associated signaling networks at both the biochemical and cellular levels. This suite of tools has enabled Dr. Radu and colleagues to rapidly screen and optimize small molecule inhibitors of Deoxycytidine Kinase, leading to Trethera’s first clinical candidate compound, TRE-515.

Development Programs
Trethera’s first program, TRE-515, is an oral medicine which blocks Deoxycytidine Kinase, a key enzyme implicated in cancer cell proliferation and the production of deoxynucleotide triphosphates for DNA replication. TRE-515 is being developed as a part of dual therapy with Triapine®, and the first-in-human clinical trial for TRE-515 is expected to commence in H2 2017.

Operational Strategy
Trethera has minimized its start up costs and achieved its milestones in an accelerated fashion by operating as a “virtual business,” with a team of consultants and employees.

Intellectual Property
Trethera has exclusively licensed its proprietary dCK inhibitors and associated technology. Trethera has also secured exclusive, worldwide rights to Triapine® in blood cancers. The company’s portfolio of patents continues to expand to further strengthen the company’s intellectual property position.

Collaborators and Advisors
Trethera is led by a management team with a wealth of pharmaceutical and biotechnology industry experience, spanning drug discovery, clinical development, product commercialization, and marketing. The management is supported by an accomplished Board of Directors and external advisors.