

## Corporate Background

Alpha Cancer Technologies Inc., (ACT) is a private clinical stage biotechnology company with products under development in auto-immune and oncology disease indications. The company's drug products use proprietary recombinant human alpha fetoprotein (AFP). In nature AFP is an immune regulatory protein involved in protecting the fetus from attack by the mother's immune system and is a carrier protein known for diverting and transporting nutrients from the mother to AFP receptors which are found exclusively on rapidly growing fetal cells.

**In Immunology** the company is ready to enter Phase II clinical trials in Myasthenia Gravis (MG) (Orphan Drug Designation from the FDA) followed by Phase II clinical trials in Inflammatory Bowel Disease (IBD/Crohn's/Colitis) with extensions to Hashimoto Disease and Multiple Sclerosis (MS). ACT-101 (AFP) has been shown to be as safe as placebo in clinical trials in over 300 patients.

**In Oncology** AFP can deliver chemotherapy to cancer cells on a targeted basis to provide greater efficacy with significantly reduced toxicity.

Celgene, one of the world's largest biotechnology companies owns a 12% equity stake in ACT.

The company has a significantly mitigated risk profile in every area of development and has an expedited clinical development path.

## Compelling Rationale – Game Changer

**In Immunology** it is well-known that many autoimmune diseases in women typically go into remission during pregnancy and there is a strong correlation between the level of AFP in mother's blood and the decrease in the symptoms of her disease. The company is ready to enter Phase II clinical trials in Myasthenia Gravis (MG) (for which the Company has Orphan Drug Designation from the FDA) followed by clinical trials in Inflammatory Bowel Disease (IBD), Hashimoto and Multiple Sclerosis (MS). ACT-101 (AFP) has been shown to be as safe as placebo in clinical trials in over 300 patients.

In a randomized placebo controlled clinical study conducted by Russian and Israeli clinicians in patients with inflammatory bowel disease (IBD – Crohn's/Colitis) using AFP extracted from human fetal tissue, AFP was highly effective in reducing inflammation and producing remission in patients who were unresponsive to standard therapies. Study summary is below:

- *Randomized placebo-controlled study in patients with IBD (78 patients - 56 with colitis, 22 with Crohn's)*
- *Disease duration of 5-15 years with radiological evidence of disease*
- *Patients were treated with AFP 4 microg/kg daily (10 Crohn's-IM and 28 colitis - IV) 40 with placebo for 30 days*
- *After 30 days 100% of AFP-treated patients had definite improvement in their symptoms*
- *Laboratory parameters returned to normal (Hemoglobin, albumin, IGA, IGM, decrease in CD71+ cells, etc.). 47% of patients gained weight of up to 12 kg. 30% of Crohn's and 32% of colitis patients had complete restoration of normal bowel movements and no symptoms of disease. Endoscopy confirmed improvement in the intestinal mucosa with reduction of the number of ulcerative lesions. 30% of Crohn's patients were able to reduce steroid dose to half and 20% went off steroids completely. 32% of colitis patients were able to reduce steroid dose by 2-3 fold and 7% went off steroids completely.*
- *No significant changes were observed in placebo patients.*

Studies using the TNBS preclinical model of IBD were carried out by Intestinal Biotech Development CRO at the Lille School of Medicine to corroborate these findings and data were presented on October 16, 2017 at the World Congress Meeting of the American College of Gastroenterology. The studies showed that ACT-101 is as good as or better than Anti-TNF Alpha (Humira/Remicade) see poster/release with a better safety profile. The investigator advised us that in over 15 years running this model they have never seen inflammatory reduction greater than 20% and anti-TNF $\alpha$  was always superior. These results show a 53% reduction in Ameho scores (inflammatory response) versus a 45% score for anti-TNF $\alpha$  (p=.0003).

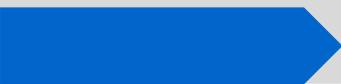
In a study conducted at George Washington University in a model of Myasthenia gravis ACT-101 (AFP) has been shown to greatly reduce symptoms of the disease and reduce accumulation of MG antibodies in the neuromuscular gap junctions.

**In Oncology** Only trace amounts of AFP are found following the fetal stage but receptors for AFP show up again on almost all solid and liquid cancer cells. The company uses its proprietary recombinant human AFP to deliver a chemotherapy payload to selectively kill cancer cells. Lower toxicity of this targeted approach offers the ability to treat the patient more frequently until the patient is cancer free.

ACT has several lead products that include non-covalently bound chemotherapy (paclitaxel, thapsigargin) and chemically linked chemotherapy such as maytansine. In addition to proven efficacy and known safety profile of generic chemotherapy drugs, AFP itself has been proven as safe as placebo in over 300 patients in Phase I and II clinical studies. ACT's products are being developed as a treatment for multiple cancer indications as almost all cancer cells (solid and liquid) express AFP receptors and healthy cells do not.

As just reported in the medical journal **"Cancer Immunology, Immunotherapy"** October, 2017 - AFP plus chemotherapy will knock out MDSC (Myeloid Derived Suppressor Cells). These are the cells that block a patient's immune system from identifying and attacking the cancer. So by knocking them out we unleash the patient's immune to attack the cancer as well. So we can directly target cancer receptors on cancer and we are able to unlock the immune system to attack the cancer as well.

## Product Pipeline

Therapy	Indication	Partners	Discovery	Pre-clinical	Phase I	Phase II
<b>ACT-101 (AFP)</b>	<b>Autoimmune</b> a) Inflammatory Bowel Disease (Crohn's/Colitis) b) Myasthenia Gravis (muscle weakness) c) Hashimoto Disease d) Multiple Sclerosis, others					
<b>ACT-901</b> (AFP + paclitaxel)	<b>Targeted Oncology</b> Solid and liquid tumors	Collaboration University Health Network				
<b>ACT-902</b> AFP + thapsigargin	<b>Targeted Oncology</b> Solid and liquid tumors	Collaboration University Health Network, Princess Margaret Cancer Center				
<b>ACT-903</b> AFP + Linker + maytansine	<b>Targeted Oncology</b> Solid and liquid tumors	Collaboration Polytherics (Abzena) U.K.				

## Preclinical Studies

In collaboration with researchers at the University Health Network and the Ontario Cancer Institute/Princess Margaret Cancer Centre in Toronto, ACT has completed preclinical studies examining the activity, safety and efficacy of ACT-901 and ACT-902. In vitro and in vivo results have shown that ACT-901 (AFP+ paclitaxel) and ACT-902 (AFP+thapsigargin) can successfully target and kill cancer cells with little to no toxicity and without the "off-target" damage to healthy cells. ACT-903 (AFP+linker+maytansine) is ongoing similar studies currently.

A targeted delivery platform technology, transporting a well-established chemotherapeutic drug directly to cancer cells, will enable uptake and use of ACT's platform in multiple forms of cancer; starting with ovarian and testicular germ cell cancer, rare disease indications, providing ACT-901 a valuable orphan drug designation in the US and Europe, and early commercial approval and expanding usage to other solid and liquid based cancers. Dr. Daniel Von Hoff, a key oncology opinion leader, is advising the company on the upcoming clinical trials.

## Additional Potential Benefits of ACT's Approach

Immuno-oncology is currently one of the most active areas of research with almost every major pharmaceutical company developing such products. However, almost all of the approaches being explored aim at unblocking a specific immune check-point in the very complex universe of immune system interactions and carry risk of serious side-effects and limited efficacy in solid tumors.

ACT's delivery technology targets receptors on cancer cells. Watch an animation at [www.alpha-cancer.com](http://www.alpha-cancer.com)