

Novelos Therapeutics is a pharmaceutical company developing novel drugs for the treatment and diagnosis of cancer. Our **three cancer-targeted compounds** are selectively taken up and retained in cancer cells (including cancer stem cells) versus normal, healthy cells. Thus, our therapeutic compounds directly kill cancer cells while minimizing harm to normal cells. This offers the **potential for a paradigm shift in cancer therapy** by providing efficacy versus all three major drivers of mortality in cancer: primary tumors, metastases and stem cell-based relapse. **LIGHT** is a small-molecule cancer-targeted PET imaging agent. **LIGHT** has first-in-class potential and Phase 1-2 clinical trials are ongoing. **HOT** is a small-molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that delivers radiation directly and selectively to cancer cells and cancer stem cells. **HOT** also has first-in-class potential. **HOT** Phase 1b dose-escalation trial is ongoing and we expect **HOT** to enter Phase 2 trials in Q1 2013 as a monotherapy for solid tumors with significant unmet medical need. **COLD**, a cancer-targeted non-radioactive chemotherapy, works primarily through Akt inhibition. We plan to file an IND for **COLD** in Q1 2013. Together, we believe our compounds are able to **"find, treat and follow" cancer anywhere in the body in a novel, effective and highly selective way.**

INVESTMENT HIGHLIGHTS

Three novel cancer-targeted compounds

- **LIGHT** is potentially a replacement for current state-of-the-art PET imaging agent in oncology, FDG, which has annual sales of > \$500 million
- **HOT** is potentially a first-in-class cancer-targeted radiotherapeutic; comprised of a non-pharmacologic amount of **COLD** as a delivery vehicle plus cytotoxic radiotherapy (iodine-131)
- **COLD** acts as both a delivery vehicle in small quantities and as a cancer-targeted chemotherapy in higher doses via Akt inhibition; **COLD** i.v. administration offers potential for best-in-class versus perifosine, which is dose-limited by GI side effects stemming from obligatory oral administration.

Quantitative **LIGHT** imaging → predictor of efficacy and driver of **HOT** Phase 2 trials

Cancer stem cell targeting by **HOT** and **COLD** offers potential to prevent cancer relapse

Manufacturing a core competency

- In-house cGMP radiopharmaceutical manufacturing facility at Madison, Wisconsin headquarters
- Can manufacture at scale; stability; low cost of goods

Product pipeline has multiple value-creating milestones over coming year

- **HOT** Phase 1b trial ongoing
- **LIGHT** Phase 1-2 cancer imaging trials in lung cancer and brain metastases – initial data expected Q2 2012
- Publication of additional preclinical data in peer-reviewed journals Q2 2012
- **HOT** Phase 2 clinical trials in solid tumors with significant unmet medical need – first patient in (FPI) Q1 2013
- File IND for **COLD** as Akt inhibitor Q1 2013

Large market opportunity

- Global cancer markets estimated to be \$80 billion in 2012
- U.S. cancer care costs to reach \$158 billion by 2020

Experienced and proven leadership

- Management and Board of Directors with combined 250+ years of life sciences expertise
- Board and advisors include luminaries in the field
- Supported by world's leading oncology/radiology consultants

Broad US & Intl patent estate creates a barrier to entry

- 8 issued US and 5 issued foreign patents, plus 14 pending US and foreign applications on the technologies
- Claims for comp matter, methods of use, manufacturing

FIND. TREAT. FOLLOW.™

LIGHT

LIGHT, a small molecule imaging agent, is comprised of a small quantity of **COLD**, acting as a cancer-targeted delivery and retention vehicle, and incorporating iodine-124, a proven PET imaging isotope. **LIGHT** has selectively illuminated malignant tumors and metastases in 52 of 54 human and spontaneous tumor models in animals, thereby demonstrating evidence of broad-spectrum, cancer-selective uptake and retention.

HOT

HOT is a small molecule, broad-spectrum, cancer-targeted molecular radiotherapeutic that is comprised of a small amount of **COLD**, acting as a cancer-targeted delivery and retention vehicle, and incorporating a cytotoxic dose of radiotherapy in the form of iodine-131, a radioisotope commonly used to treat thyroid and other cancer types. This "intra-cellular radiation" mechanism of cancer cell killing imbues **HOT** with broad-spectrum anti-cancer activity shown in 12+ animal models.

COLD

COLD inhibits the PI3K/Akt proliferation and survival pathway, which is over-expressed in many types of cancer. **COLD** selectively inhibits Akt activity, induces caspase-mediated apoptosis and inhibits cell proliferation in cancer cells versus normal cells. **COLD** exhibits significant *in vivo* efficacy in mouse xenograft tumor models, including non-small cell lung cancer and triple-negative breast cancers, producing long-lasting tumor growth suppression and significantly increasing overall survival.

CANCER-TARGETING TECHNOLOGY PLATFORM

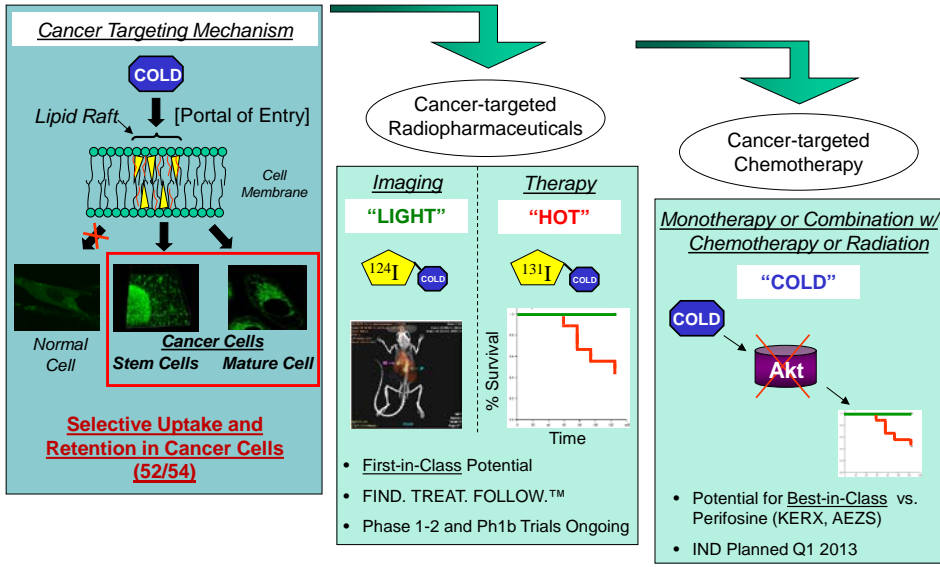
“LIGHT”, “HOT”, “COLD”

Novel, Cancer-Targeting, Broad Spectrum, Multi-Product Technology Platform

Novelos' technology enables targeted delivery of cytotoxic radiation to cancer cells and cancer stem cells, or, in non-radioactive form, apoptosis-inducing Akt inhibition.

Other labeled variations of the company's compounds provide imaging agents for an accurate diagnosis of cancer, including metastases, and can also objectively measure therapeutic success.

In combination, this platform is capable of yielding multiple, distinct oncology product opportunities, which will enable Novelos to “find, treat and follow” cancer anywhere in the body in a novel, effective and highly selective way.



DEVELOPMENT MILESTONES

Novel Cancer-Targeted Technology	1Q12	2Q12	3Q12	4Q12	1Q13	2Q13
"LIGHT": Cancer-Targeted PET Imaging		L				
Phase 1-2 in Brain Mets - Initial Data Q2 2012		L				
Phase 1-2 in Lung Cancer - Initial Data Q2 2012		L				
Phase 1-2s in Other Solid Tumors - FPI Q2 2012			L			
"HOT": Cancer-Targeted Radiotherapy						
Phase 1b - Ongoing						
Phase 2a in Lung Cancer or Brain Mets - FPI Q1 2013						H
Phase 2a in Other Solid Tumors - FPI Q2 2013						
"COLD": Cancer-Targeted Chemo (Akt Inhibitor)						
IND Submission - Q1 2013					IND	
Additional Peer Reviewed Publications - Q2 2012						

L = LIGHT initial imaging clinical data expected (establish HOT Phase 2a dose; drive partner interest)

H = HOT Phase 2a initial efficacy signal expected (proof of concept)

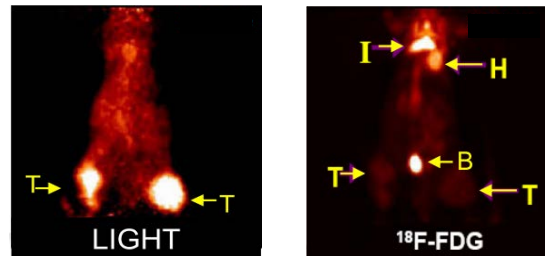
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“LIGHT” IS SUPERIOR TO FDG AS A PET IMAGING AGENT (same mouse)



T = Tumor, B = Bladder
 I = Inflammation site, H = Heart

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