



Lorus is a clinical stage drug development company focused on the discovery, research and development of innovative and effective anticancer therapies with high safety profiles.

## BUSINESS STRATEGY

Lorus' R&D programs include an exceptionally robust pipeline in various stages of development, ranging from preclinical programs to an advanced Phase II clinical program. Lorus' strategy is to continue the development of its products using several therapeutic approaches. Each approach is dependent on a different technology, thereby mitigating the development risks associated with a single technology platform.

## INVESTMENT CONSIDERATIONS

### • Robust pipeline:

Lorus has a focused drug pipeline that addresses novel and validated cancer targets using RNA-targeted and Small Molecule platform technologies.

### • Unique Positioning:

Lorus develops safe, novel and efficacious drugs for the treatment of cancer with unmet medical needs.

### • Multiple Platform Technologies:

Cancer progression is a complex process, which is why we believe it will continue to be treated by many different drugs with a variety of mechanisms of action. This multi-mechanistic approach for the treatment of cancer essentially reduces the risks inherent in the drug development process.

## RECENT MILESTONES

### LOR-2040 Program

- Announced favourable top line Phase II result with LOR-2040 in combination with cytarabine for treatment of patients with AML, which provides the basis for advancement to a comparative trial as a strategy to support registration
- US\$2M grant to Lorus' collaborators at OSU to develop nanoparticle delivery technology together with Lorus RNA-targeted drugs
- Initiated a development program to examine direct (intravesical) administration of LOR-2040 into the bladder as a treatment for superficial or non-invasive bladder cancer
- Announced allowance of a new Japanese patent to protect LOR-2040 composition and its use in the treatment of cancer

### Virulizin®

- Announced Publication of two research studies on the mode of action for Virulizin® and the issuance of a new patent in Mexico
- Secured an exclusive multinational license agreement with Zoticon Bioventures

### LOR-253 Program

- Successfully completed IND-enabling toxicology studies for the lead small molecule drug candidate, LOR-253, which targets the metal-regulatory transcription factor, MTF-1, leading to induction of the novel tumor suppressor factor, KLF4, and cell cycle arrest
- Successful conclusion of pre-IND meeting with US FDA
- Announced publication supporting a novel mode of anticancer therapy for the LOR-253 class of compounds

# FINANCIAL HIGHLIGHTS

Ticker Symbol	TSX: LOR
Shares Outstanding	257.01 Million
Price per Share	\$0.065 (52 week: \$0.03-\$0.10)
Market Capitalization	\$16.71 Million
Daily Average Volume (3m)	133,305
Cash and Short-Term Investments	\$1.4 Million (as at August 31, 2009) (additional \$2.46 Million received in November 2009)
Current Burn Rate per Quarter	\$1.0 Million

Drug (Indication)	Target	Preclinical	Phase 1	Phase 2	Phase 3
LOR-2040 (AML)	RNR R2				
LOR-253 (Solid Tumors)	MTF-1				
Virulizin (Pancreatic Cancer)	In partnership with ZOR Pharma				

## TECHNOLOGY OVERVIEW

Lorus' drug pipeline addresses novel and validated cancer targets using RNA-targeted, Small Molecule and Immunotherapy technologies with high safety profiles.

## CLINICAL DEVELOPMENT FOCUS

### LOR-2040: Acute Myeloid Leukemia (AML)

- LOR-2040 dramatically decreases expression of the R2 subunit of ribonucleotide reductase (RNR).
- Lorus has demonstrated that targeting the R2 subunit with LOR-2040 can inhibit RNR activity in cancer cells.
- Extensive preclinical studies have shown that LOR-2040 has significant antitumor activity that correlates with decreased expression of R2 mRNA and protein levels.
- These studies have shown that LOR-2040 is a selective and specific anticancer agent against a broad range of human cancers including renal, breast, non-small cell lung (NSCL), colon and prostate cancers, as well as leukemia, and have provided support for clinical use of LOR-2040 in solid tumors and hematological cancers.
- LOR-2040 has shown a high safety profile in clinical trials with minimal adverse side effects to patients.

### Status:

- Completed advanced Phase II clinical trial of LOR-2040 in combination with high dose Ara-C (HiDAC) as salvage therapy in refractory/relapsed AML patients of 60 years of age or younger to the end-of-stage assessment time point, with favourable results.
- LOR-2040 is also in a Phase I trial as a monotherapy or single agent in patients with high grade Myelodysplastic Syndromes (MDS) and Acute Leukemias (AL), as well as in five pilot Phase I/II trials in combination with approved chemotherapies in a variety of solid tumors.
- Clinical studies in MDS/AL and solid tumors are sponsored by the US-NCI under a Clinical Trials Agreement.

### Next steps:

- The Steering Committee agreed that based on the strength of the Phase Ib and Phase II clinical data, expansion to a definitive comparative trial is the most appropriate next step to support registration. On this basis, Lorus is proceeding with protocol development for the expanded development program.
- The solid tumor program sponsored NCI-CTEP is nearing completion. Future development in solid tumors will require selection of the best indication from the study programs in NSCLC, prostate cancer, breast cancer, colon cancer, and solid tumors, with various chemotherapies in combination with LOR-2040 and strategies for optimizing the combination dose schedule.
- The preclinical GLP-toxicology program of LOR-2040 in support of the bladder cancer program was completed and the program is IND-ready to initiate a pilot study of LOR-2040 as a single agent administered intravesically in patients with superficial and non-invasive bladder cancer.

## VIRULIZIN®: Pancreatic Cancer

- Virulizin®, Lorus' lead immunotherapy drug is a novel immunotherapy agent that stimulates the body's immune system through several mechanisms, including the activation of macrophages, and the infiltration of natural killer cells into tumors.
- Virulizin® also induces the expression of several cytokine proteins such as IL-12 and IL-17E, which act as chemical messengers to boost the cellular immune response against cancer.
- These combined activities have significant antitumor effects, while showing a high safety margin.

### Status:

- Virulizin® is approved for the treatment of malignant melanoma in Mexico.
- Results of a Phase III clinical trial in patients with locally advanced or metastatic pancreatic cancer who were treated with Virulizin® plus gemcitabine (an approved drug for pancreatic cancer) indicated that overall survival data did not reach statistical significance.
- Exploratory analysis of the Phase III trial data showed a survival advantage of almost 4 months in a subgroup of patients who continued with Virulizin® in second line therapy, supporting the potential for further clinical studies in these patients.
- In April 2008, Lorus signed an exclusive multinational license agreement with ZOR Pharmaceuticals, LLC formed as a subsidiary of Zoticon Bioventures Inc., to further develop and commercialize Virulizin® for human therapeutic applications.
- In June 2009, Lorus sold the Virulizin® IP to The Toronto Erin Mills Investment Corporation (TEMIC), who will be responsible for all developmental costs not covered by the ZOR license agreement.

## SENIOR MANAGEMENT TEAM

Aiping H. Young, MD, PhD,  
President and Chief Executive Officer

Saeid Babaei, PhD, MBA,  
Vice President, Business Development

Yoon Lee, PhD,  
Vice President, Research

Peter Murray  
Director, Clinical Development

Elizabeth Williams, CA,  
Director of Finance and Acting CFO

## LOR-253: Solid Tumors

- LOR-253 (formerly LT-253) is a proprietary lead small molecule compound discovered at Lorus and optimized for its anticancer properties.
- First-in-class drug that acts through cancer-specific zinc signaling mechanisms mediated by inactivation of the metal-regulatory transcription factor, MTF-1, and induction of the tumor suppressor factor, KLF4, leading to cell cycle arrest and inhibition of tumor angiogenesis.
- Alterations in cell cycle regulatory mechanisms involving KLF4 suppression have been linked to the development of several cancers.
- In preclinical studies LOR-253 has shown to be a very potent, yet highly selective growth inhibitor of many cancer types, including non-small cell lung cancer, colon cancer, prostate and leukemia.

### Status:

- LOR-253 successfully completed IND-enabling GLP toxicology studies in Nov 2008
- Lorus concluded the pre-IND meeting with the US FDA in Feb 2009.
- A single-agent dose escalation Phase I clinical trial in solid tumors is expected to start in Q1 2010, with the following objectives:
  - To determine MTD and recommend Phase II dose
  - Expansion of MTD cohort to further evaluate activity and tumor biomarkers in biopsy-suited patients
  - MTD expanded cohort enriched with selected tumor types with focus on colon cancer and non-small cell lung cancer with accessible metastases

## BOARD OF DIRECTORS

Mr. Herbert Abramson  
- Chairman and CEO, Trapeze Capital Corp.

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- CEO, Sarissa, Inc.

Dr. Jim A. Wright  
- CEO, NuQuest Bio Inc.

Dr. Aiping H Young  
- President & CEO, Lorus Therapeutics Inc.

# PRECLINICAL DRUG CANDIDATES

Drug Candidate	Technology	Target	Discovery	Lead Iden.	Preclinical	Phase 1
LOR-220	Small Molecule	PI3K/mTOR	████████████████████			
LOR-264	Small Molecule	MTF-1	██			
LOR-500	Small Molecule	Multi-Kinases	████████████████████			
LOR-1284	siRNA	RNR R2	██			
IL-17E	Cytokine	Immune-modulation	██			

- Lorus has developed small molecule drug screening technologies and preclinical scientific expertise, which we are using to identify several groups of novel small molecules that have potential to be “first in class” and/or “best in class” with strong anticancer activity and a high therapeutic index.
- Our proprietary group of novel small molecule compounds have unique structures and modes of action, and are promising candidates for the development of novel anticancer agents with high efficacy and safety profiles.
  - LOR-220** is a novel compound that targets PI3 Kinase/ mTOR that are critical in a major signal transduction pathway involved in tumorigenesis and malignancy. Structural optimization of LOR-220 has yielded several novel drug candidates that show potent anticancer activity.
  - LOR-264** is an orally active second-generation derivative of LOR-253 that has also demonstrated potent anticancer activity in animal studies. Derivatives of LOR-264 are currently being assessed for anticancer activity as part of our lead optimization process.
  - LOR-500** targets multikinases including tyrosine kinase family members and a member of the calcium/calmodulin dependent protein kinase family. Hit-to-lead optimization of LOR-500 is being currently conducted to identify a lead drug candidate.
  - LOR-1284** targets the R2 subunit of ribonucleotide reductase and has demonstrated strong antitumor activity in several human tumor models including renal cell carcinoma, melanoma and colon adenocarcinoma. LOR-1284 is the lead compound for a study conducted by Lorus’ collaborators at OSU to explore the potential of applying OSU’s proprietary tumor-targeted nanoparticle drug delivery technology with RNR-targeted RNA-based drugs. This study is funded with a US\$2M grant from the US National Institutes of Health.
  - Interleukin-17E (IL-17E)** is an inflammatory cytokine that Lorus' scientists were the first to discover with an anticancer activity against several human tumor types, including colon cancer, melanoma, and pancreatic cancer, with low toxicity. Additional preclinical studies are being done with IL-17E to further evaluate its efficacy and toxicity profile in comparison to other cytokines that are approved for cancer therapy, including interferon alpha and interleukin-2.



## Contact Information

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