

# Novelos



Novelos Therapeutics, Inc. (OTCBB: NVLT) is commercializing clinically proven pharmaceuticals for the treatment of cancer and infectious diseases

October 16, 2009

Novelos

# DISCLAIMER

This slide presentation contains forward-looking statements. Such statements are valid only as of today, and we disclaim any obligation to update this information. These statements are subject to known and unknown risks and uncertainties that may cause actual future experience and results to differ materially from the statements made. These statements are based on our current beliefs and expectations as to such future outcomes. Drug discovery and development involve a high degree of risk. Factors that might cause such a material difference include, among others, uncertainties related to the ability to attract and retain partners for our technologies, the identification of lead compounds, the successful preclinical development thereof, the completion of clinical trials, the FDA review process and other government regulation, our pharmaceutical collaborators' ability to successfully develop and commercialize drug candidates, competition from other pharmaceutical companies, product pricing and third-party reimbursement.

# NOVELOS OVERVIEW

- ◆ Established to commercialize oxidized glutathione-based compounds for **Cancer** and **Hepatitis**

*Regulate redox-sensitive cell signaling pathways involved in cancer proliferation, cell-mediated immunity and hematopoiesis*

- Phase 3 in NSCLC under SPA and Fast Track
  - Phase 2s in breast and ovarian cancers
  - Approved in Russia, thousands of patients treated effectively and safely
  - Pipeline compound – Phase 1b completed in chronic hepatitis C
- ◆ Intellectual property is solid and extensive
    - 6 US, 2 European and 1 Japanese patents
    - Covers composition of matter (2019), method of use and manufacture
  - ◆ Results from pivotal Phase 3 NSCLC trial expected early 2010

# NOV-002

## Lead Compound

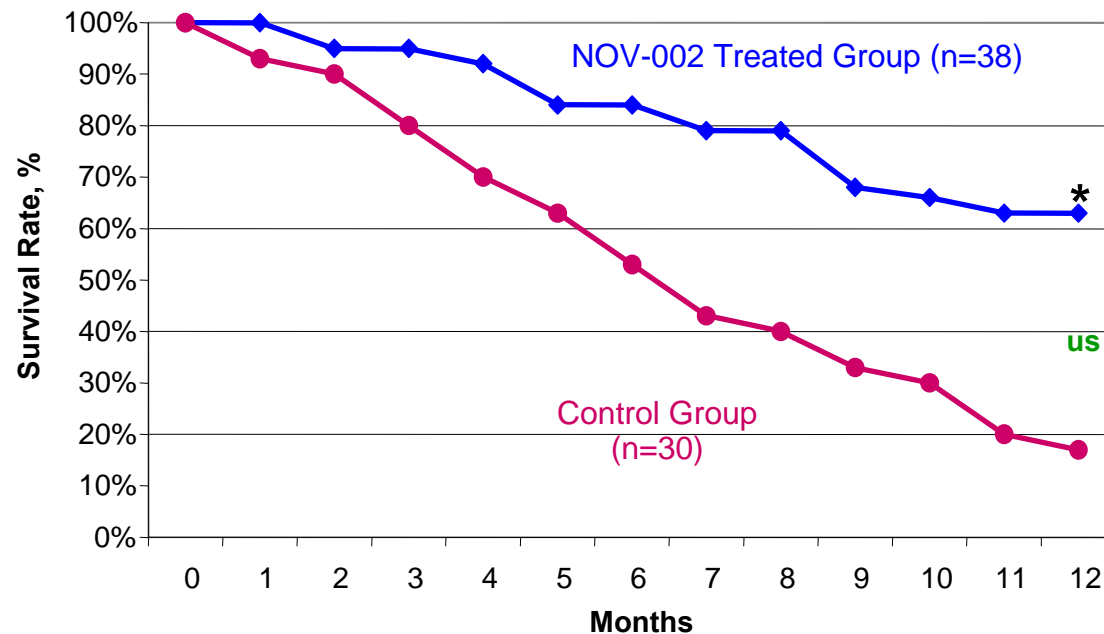
Product	Indication	Product Origin	US Clinical Status	NDA / Approval	US Pts ('000) / Market Size
NOV-002	NSCLC	<i>Oxidized Glutathione Platform</i>	<b>Phase 3</b>	2010/11	187 new per yr / \$3.5+ billion
	Breast Cancer		Phase 2	TBD	180 new per yr / \$3+ billion
	Ovarian Cancer		Phase 2	TBD	25 new per yr / \$300 million

- ◆ Chemopotentiator AND chemoprotectant; excellent safety profile
- ◆ **Phase 3 NSCLC trial under SPA and Fast Track**
  - Reached target enrollment of 840+ patients in March 2008
  - Trial conclusion expected early 2010
- ◆ US Phase 1/2 NSCLC trial: **improved objective tumor response** ( $p < 0.05$ ) and **higher tolerance of chemo** ( $p < 0.01$ ) vs the control
- ◆ Russian Phase 2 NSCLC trial: **increased 1-year survival from 17%** (40% current US equivalent) **to 63%** ( $p < 0.01$ )
- ◆ Independent Russian Phase 2 NSCLC trial: **>50% 1-year survival**

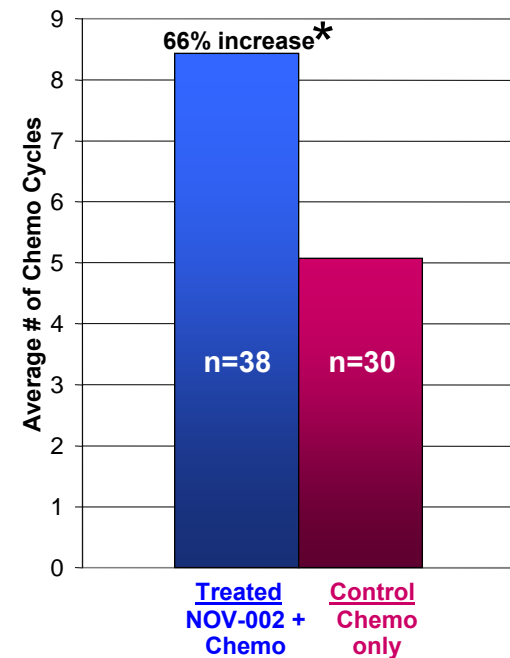
# NOV-002

## Russian NSCLC Phase 2 Clinical Trial

- ◆ Two-arm, controlled, randomized, open label, multi-center study in chemo-naïve advanced NSCLC
- ◆ First-line cisplatin-based chemotherapy (no paclitaxel)
- ◆ **1-yr Survival: 63% NOV-002 + Chemo vs. 17% Chemo alone**
- ◆ **Median survival NOT reached at 14 months for the NOV-002 treated group**
- ◆ Significant increase in tolerance to chemotherapy (66% more cycles received)



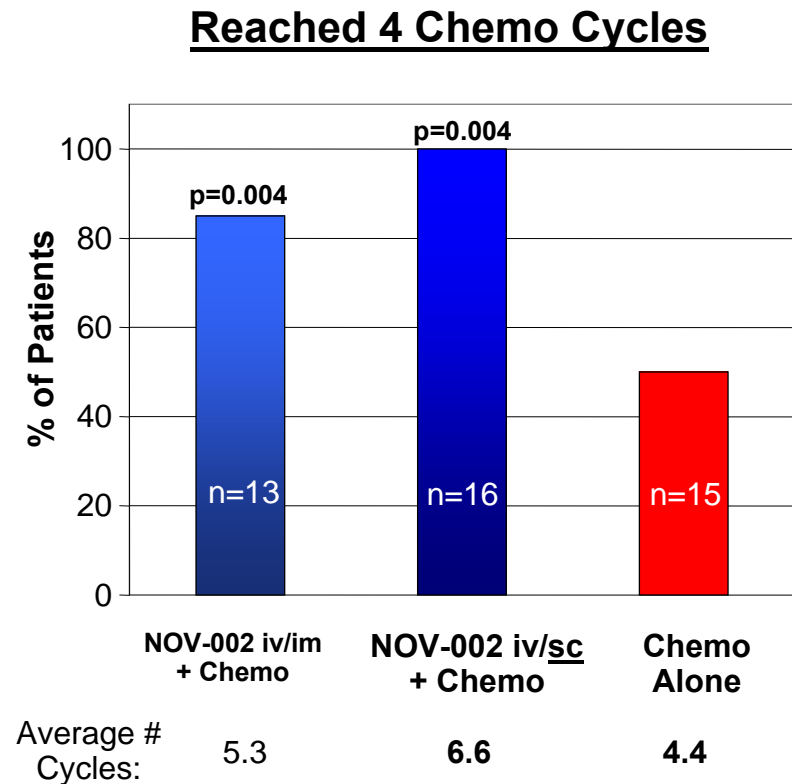
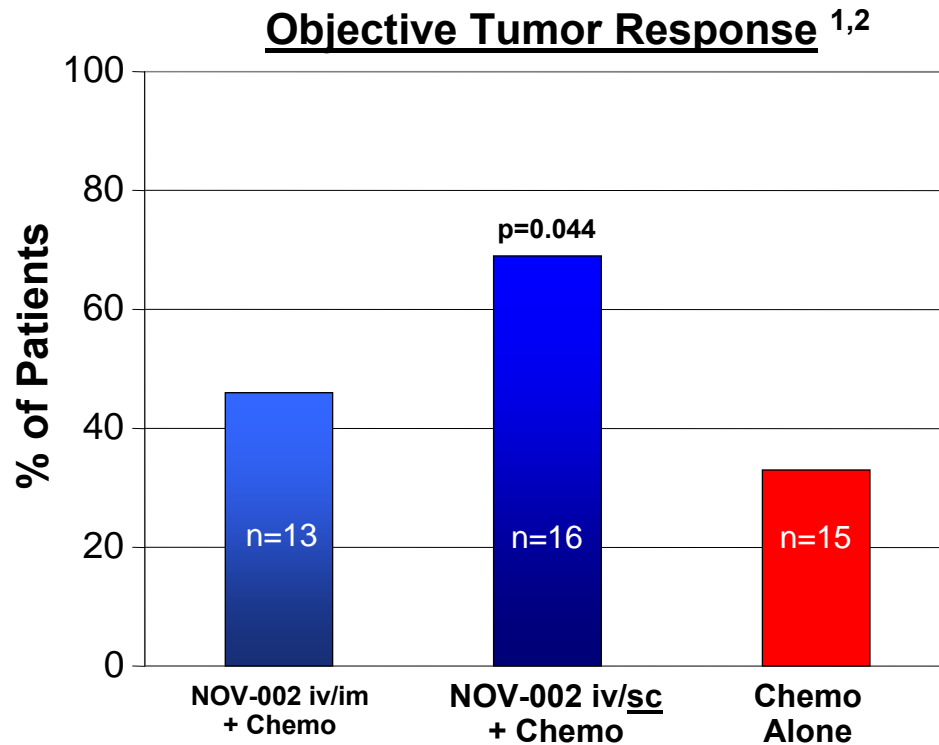
("us" refers to ~40% one-year survival expected with current US standard of care)



# NOV-002

## U.S. Phase 1/2 NSCLC Trial

- ◆ Standard 1<sup>st</sup>-line chemo (paclitaxel & carboplatin) +/- NOV-002
  - Improved objective tumor response
  - Received more cycles of chemotherapy



<sup>1</sup> Intent to treat analysis

<sup>2</sup> Best overall response =  $\geq 50\%$  reduction in tumor size

# NOV-002

## International Pivotal Phase 3 NSCLC Trial

- ◆ SPA for single pivotal Phase 3 trial in 1<sup>st</sup>-line NSCLC
  - Trial Chairs: Dr. Tom Lynch, Yale; Dr. Panos Fidias, MGH
  - 840 patients (p<0.05; 85%); overenrolled to ~900 patients
  - Two arms: **NOV-002** + paclitaxel & carboplatin (12.5m mOS)  
vs  
paclitaxel & carboplatin (10m mOS)
  - Primary endpoint: median **Overall Survival** (at 725 deaths)
  - 12 countries, ~100 clinical sites
- ◆ Target enrollment reached in March 2008
- ◆ **Trial conclusion expected early 2010**

# NOV-002

## Median Survival with Paclitaxel/Carboplatin (PC) in Chemo Naïve Stage IIIb/IV NSCLC Patients – Phase 3 Trials over past 10yrs

Trial	Publication	Date	# Patients	NCCN Poor Prognostic Factors			NCCN - Little Prognostic Significance		Median OS in PC months	Median 1Y OS %	ORR %	Median PFS months
				% Stage IV	% Male	ECOG≥2	Median Age	Histology				
ESCAPE (Sorafenib)	Hanna ESCAPE	2008	926 (462 PC)	90 (overall)	63 (overall)	0-1	62 (overall)	24% Squamous (overall)	10.7	unk	24	5.7
Alpha Oncology Trial (A1-99002L)	Treat et al	2005	1135 (379 PC)	89	61	0-1	64	16% Squamous	8.7	36	30	4.7
Spirit II (Targretin)	Blumenschein et al	2005	612 (306 PC)	87	66	0-1	unk	21% Squamous; 50% Adeno	9.2	unk	24	4.9
Tribute (Tarceva)	Herbst et al	2005	1059 (533 PC)	82	62	0-1	63	16% Squamous; 61% Adeno	10.5	44	19	4.9
ECOG 4599 (Avastin)	Sandler et al	2005	878 (444 PC)	87 <sup>1</sup>	58	0-1	63 (overall)	0% Squamous; 88% Adeno	10.3	44	15	4.5
Intact 2 Trial (Iressa)	Herbst et al	2004	1037 (345 PC)	78	61	0-1; 91%	63	19% Squamous; 52% Adeno	9.9	42	29	5
FACS Study <sup>2</sup>	Kubota et al	2004	581 (145 PC)	81	68	0-1	63	21% Squamous; 75% Adeno	12.3	51	32	4.5
ISIS 3521 (Antisense)	Lynch et al	2003	616 (307 PC)	86	63 (overall)	0-1	62	61% Adeno; 39% Other	9.7	42	36	unk
ECOG 1594	Schiller et al	2002	1207 (290 PC)	86 <sup>1</sup>	62	0-1: 95%	63	unknown	8.1	34	17	3.1
CALGB 9730	Lillenbaum et al	2002	561 (284 PC)	87 <sup>1</sup>	68	0-1: 83%	64	51% Adeno; 45% Others	8.8	37	30	4.6
Comp. of PT Doublets	Scagliotti et al	2002	612 (201 PC)	82 <sup>1</sup>	76	0-1: 92%	62	32% Squamous; 48% Adeno	9.9	43	32	5.5
SWOG9509	Kelly et al	2001	408 (206 PC)	88	70	0-1	62	stratified for histology	8.6	38	25	4

<sup>1</sup>Includes recurrent disease

<sup>2</sup>100% of patients in FACS study were Japanese

**# PC Patients: 3,902      Weighted Average PC Median Survival: 9.7 months**

Based on publicly available information

# NOV-002 Comparator Matrix

Product / Company	Status	Description	Safety	Efficacy - Combo w 1st-line Chemo / Chemopotentiation	Chemoprotection
<b>NOV-002 / Novelos</b>	Phase 3	Chemopotentiator and chemoprotector	Excellent safety profile to date	Phase 2s: median survival 14+ months, 70% objective tumor response	Yes
<b>Carboplatin+ paclitaxel; cisplatin+ gemcitabine</b>	Marketed	First-line chemotherapy combos	Severe toxicities (e.g. hematological, neurological, renal)	1st-line chemo: Median survival ~10 months; ~30% objective tumor response	n/a
<b>Avastin / Genentech</b>	Marketed	Angiogenesis inhibitor	Pulmonary bleeding, neurotox, GI perforations, hypertension, wound healing	Median survival ~12 months	No
<b>Tarceva / OSI et al</b>	Marketed	Targets HER1 (EGF receptor)	Hepatotoxicity, pulmonary tox, rash, diarrhea	Failed 1st-line; approved 2rd line (as monotherapy) with small survival advantage vs. placebo	No
<b>Iressa / Astra Zeneca</b>	Marketed	EGF modulator	Hepatotoxicity, pulmonary tox., rash, diarrhea	Failed 1st-line; approved 3rd line on 11% response rate, no survival benefit demonstrated	No
<b>Erbitux / Imclone</b>	Marketed	Monoclonal antibody which modifies EGF activity	Infusion reactions, dermatologic tox, pulmonary tox, sepsis, renal tox	Failed Ph3 in combo with carboplatin + paclitaxel; 5 week survival advantage in Ph3 combo with vinorelbine+ cisplatin	No
<b>ASA404 / Antisoma (Novartis)</b>	Phase 3	Vascular disrupting small molecule	Infections, cardiac? Other adverse events?	Phase 2: median survival 14 months, 31% objective tumor response; Novartis running Phase 3 trials	No

<b>KEY:</b>	NOV-002 or comparable	Advantage for NOV-002	Major advantage for NOV-002	To be determined or not applicable
-------------	-----------------------	-----------------------	-----------------------------	------------------------------------

Based on publicly available information

# NOV-002

## Breast Cancer

### ◆ Phase 2 neoadjuvant trial ongoing at UMiami

- Principal investigator: Dr. Alberto Montero
- NOV-002 + standard preoperative chemotherapy of doxorubicin and cyclophosphamide followed by docetaxel in stage IIB-IIIC HER-2 negative patients
- Primary endpoint: pathologic complete response (pCR)
- 19 pts enrolled out of 46; full enrollment expected Q4 2009

### ◆ 40% pCR rate much greater than <20% historical expectation (as reported at SABCS in Dec 2008)

- 6 pCRs out of first 15 women who completed chemo and had surgery
- NOV-002 decreased hematologic toxicities and growth factor use

### ◆ Larger, multi-center controlled Phase 2 trial considered

# NOV-002

## Ovarian Cancer

### ◆ Phase 2 trial in platinum-resistant, majority 4<sup>th</sup>-line patients at Mass General Hospital (MGH) and Dana Farber

- Principal investigator: Dr. Carolyn Krasner
- NOV-002 plus carboplatin
- Presented at ASCO in May 2008

### ◆ Efficacy

- Clinical benefit (PR, SD) in 60% of evaluable patients (9 out of 15)
- **Slowed disease progression**
  - **Median PFS = 15.4 weeks** (*nearly 2x historical control of 8 wks\**)
  - Mean PFS = 19.4 weeks (*some pts derived prolonged clinical benefit*)

### ◆ Safety

- Well-tolerated
- Limited hematological tox suggesting possible mitigating effect of NOV-002

### ◆ Larger, multi-center controlled Phase 2 trial considered

\* Berkenbilt, Seiden, Krasner, et al., 2004, Gynecol Oncol V95, p 624

# NOV-205

## Pipeline Compound

Product	Indication	Product Origin	US Clinical Status	NDA / Approval	Patients / Market Size
NOV-205	Hepatitis C	<i>Oxidized Glutathione Platform</i>	Phase 1b	TBD	2.7 mil infected / \$3 billion

- ◆ Excellent safety profile
- ◆ Reduced viral load and improved liver function in Russian studies
- ◆ **Concluded US-based Phase 1b trial based on favorable safety in hepatitis C non-responders**
- ◆ Initiate longer dosing duration proof-of-concept trial during 2010 (subject to available funds)

# MILESTONES

## 12 Months

	4Q09	1Q10	2Q10	3Q10
<b>NOV-002</b>				
Phase 3 NSCLC Trial, under SPA and Fast Track		Result		
Phase 2 Breast Cancer Neoadjuvant Trial				Result
Additional Phase 2s in Cancers		Initiate		
<b>NOV-205</b>				
Next Hepatitis C Trial in Non-responders			Initiate	

# DEVELOPMENT PLAN

Compound / Indication	'09	2010				'11
	Q4	Q1	Q2	Q3	Q4	Q1
<b>NOV-002 / Lung Cancer</b>	Ph3: SPA			NDA	FDA App	
NOV-002 / Breast Cancer	Phase 2					
NOV-002 / Cancers		Additional Phase 2s				
NOV-205 / Hepatitis C		Next trial				

The primary endpoint of the pivotal Phase 3 is improvement in median overall survival

# INVESTMENT CONSIDERATIONS

- ◆ **Phase 3 NSCLC trial, under SPA and Fast Track**
- ◆ **US Phase 2 NOV-002 trials confirm efficacy seen in Russia**
  - NSCLC – improved objective tumor response ( $p < 0.05$ ) and higher tolerance of chemotherapy ( $p < 0.01$ ) vs the control
  - Breast – improved pathologic complete response rate and decreased hematologic toxicities
  - Ovarian – slowed disease progression in 60% of patients - median PFS 15.4 weeks (nearly 2x historical control of 8 wks); less hematologic tox
- ◆ **Partnerships with [Mundipharma](#) in Europe and Japan, and [Lee's Pharm](#) in China**
- ◆ **Significantly reduced risk profile**
- ◆ **Significant unmet need**
- ◆ **Solid patent protection**
- ◆ **Simple and inexpensive compounds**

# PUBLIC MARKET VALUATIONS

<b>Company Name (Symbol)</b>	<b>Indications</b>	<b>Stage of Development</b>	<b>Valuation (\$ mil)</b>
Medivation (MDVN)	Alzheimer's, Cancer	Phase 3, 3	900
Cougar (CGRB)*	Cancer	Phase 3	900
Dendreon (DNDN)	Cancer	Positive Phase 3, SPA	3,400

\* Acquired by J&J in July 2009 for ~\$1 billion (including Cougar's cash)

Valuation is based on market price as of October 16, 2009

# SENIOR MANAGEMENT

## 70+ Years of Drug Development Expertise

### ◆ Harry Palmin, President and CEO, Director

➤ Head of Novelos for 11 years; previously at Lehman Brothers and Morgan Stanley...

### ◆ Chris Pazoles, Ph.D, VP of Research & Development

➤ 25+ years of biopharmaceutical R&D and senior management experience, including at Pfizer and Abbott...

### ◆ Kristin Schuhwerk, VP of Clinical Development, Operations

➤ 15+ years of clinical operations and management experience, including Astra, Brigham & Women's, BU Med Center and Parexel...

### ◆ Elias Nyberg, DVM, BVSc, MACVS, MRCVS, MBA VP of Regulatory, Quality and Compliance

➤ 20+ years of regulatory and senior management experience, including Astra, Biogen, CombinatoRx, Pfizer...

# SAB AND CONSULTANTS

## ◆ **Kenneth Tew, Ph.D., D.Sc, Chairman of Scientific Advisory Board**

➤ Professor and Chair of the Department of Cell and Molecular Pharmacology & Experimental Therapeutics, John C. West Endowed Chair in Cancer Research, Medical University of South Carolina; oxidized glutathione expert...

## ◆ **Jeffrey Gelfand, M.D., Senior Medical Advisor**

➤ Senior Advisor for Intl Medical Affairs at Partners; Senior Attending Physician at MGH; Professor at Harvard Medical School; former Dean for Research at Tufts University School of Medicine...

## ◆ **Michael Kurman, M.D., Oncology Consultant**

➤ Practicing oncologist; 25 years expertise in oncology clinical development; successfully developed / launched 4 products...

## ◆ **Raymond Koff, M.D., Hepatology Consultant**

➤ Expert in viral hepatitis; Clinical Professor of Medicine at U of Conn; practicing hepatologist and clinical investigator for 30 years; former Director of Clinical Hepatology Research at UMASS; 155 journal articles and 85+ book chapters...

# INDEPENDENT DIRECTORS

## ◆ **Stephen Hill, B.M. B.Ch., M.A., F.R.C.S., Chairman**

➤ CEO of Solvay Pharmaceuticals; 25+ years of expertise in biopharmaceutical senior management, product development, commercialization and partnering; formerly CEO of ArQule and Head of Global Drug Development at Roche...

## ◆ **Michael Doyle, Director**

➤ CEO of Medsphere; distinguished entrepreneur and senior executive who built and operated a number of successful public and venture-backed companies...

## ◆ **Sim Fass, Ph.D., Director**

➤ 35 years of senior biopharmaceutical management experience...

## ◆ **James Manuso, Ph.D., Director**

➤ CEO of SuperGen (NASDAQ: SUPG); 30+ years of expertise in life sciences senior management, product commercialization, partnering, financing, venture management and consulting...

## ◆ **David McWilliams, Director**

➤ 35 years experience building and running public and private biopharmaceutical / healthcare companies...

## ◆ **Howard Schneider, Director**

➤ 35 years experience as senior financial industry executive...

# NOVELOS OBJECTIVES

- ◆ Conclude pivotal Phase 3 NSCLC trial, under SPA and Fast Track, in early 2010
  - Reached target enrollment of 840+ patients in March 2008
- ◆ Initiate next Phase 2 trials in cancers in 2010
  - Presented interim results of ongoing UMiami Phase 2 breast cancer trial at San Antonio Breast Cancer Symposium Dec 2008
  - Presented results of MGH Phase 2 ovarian cancer trial at ASCO May 2008
- ◆ Identify US partner after Phase 3 conclusion (early 2010)
- ◆ Initiate longer dosing duration proof-of-concept hepatitis C trial with pipeline compound (subject to available funds)