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Rexahn Pharmaceuticals Overview

May 2018

Safe Harbor Statement

The statements that follow (including projections and business trends) are forward-looking statements. Rexahn's actual results may differ materially from anticipated results and expectations expressed in these forward-looking statements, including as a result of certain risks and uncertainties, such as Rexahn's lack of profitability, the need for additional capital to operate its business to develop its product candidates; the risk that Rexahn's development efforts relating to its product candidates may not be successful; the possibility of being unable to obtain regulatory approval of Rexahn's product candidates; the risk that the results of clinical trials may not be completed on time or support Rexahn's claims; demand for and market acceptance of Rexahn's drug candidates; Rexahn's reliance on third party researchers and manufacturers to develop its product candidates; Rexahn's ability to develop and obtain protection of its intellectual property; and other risk factors set forth from time to time in our filings with the Securities and Exchange Commission. Rexahn assumes no obligation to update these forward-looking statements.

Rexahn Pharmaceuticals

The Company

The Pipeline

The Future

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Investment Highlights

- Clinical stage biopharmaceutical company developing novel targeted cancer therapeutics
  - Unique drug targets localized in cancer cells
  - Inhibit growth/proliferation of cancer cells but spare normal, healthy cells
- Attractive pipeline of novel agents:
  - RX-3117 has generated strong safety and encouraging efficacy data and is currently in Phase 2 clinical trials in metastatic pancreatic cancer and advanced bladder cancer
  - RX-5902 (Supinoxin™) a first-in-class compound with a novel mechanism of action, currently being evaluated in a Phase 2 clinical trial in triple negative breast cancer
  - Validating partnership to develop RX-0201 (Archexin®) for hepatocellular carcinoma
- Meaningful data expected in 2018/2019
- Strong leadership team with significant drug development and strategy experience

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Experienced Leadership Team

Peter D. Suzdak Ph.D., Chief Executive Officer

- 25+ years biopharma experience; broad experience spanning pre-clinical, development, commercialization; 18 IND filings, 3 NDA submissions

Douglas Swirsky CPA, CFA, President and Chief Financial Officer

- 10+ years experience; corporate financing, corporate strategy, financing, licensing, and M&A
- 9+ years experience in investment banking

Ely Benaim M.D., Chief Medical Officer

- 25+ years biopharma experience; extensive clinical research experience in academia, government, and industry

Lisa Nolan Ph.D., Chief Business Officer

- 25+ years experience in corporate strategy, M&A, funding partnerships, out-licensing, and in-licensing transactions

Differentiated Therapeutic Approach

	Traditional Chemotherapy	PD1 / CAR T-Cell Therapies	Rexahn Therapies
Selectively targets cancer cells	☐	☐	☑
Reduced adverse events	☐	☐	☑
Convenient oral dosing (RX 3117 and RX-5902)	☐	☐	☑
Active against toughest cancers	☐	☑	☑
Synergistic with existing therapies	☐	☑	☑
Broad spectrum of anti-cancer activity	☑	☐	☑

A Diversified Portfolio of Targeted Cancer Therapeutics

Drug Development Pipeline					
Drug Candidate	Cancer Indication	Market Opportunity*	Preclinical	Phase I	Phase 2
RX-3117	*Metastatic Pancreatic*	>$3B	→	→	→
	Advanced Bladder	>$1B	→	→	→
RX-5902 (Supinoxin™)	*Triple Negative Breast*	>$6B	→	→	→
RX-0201 (Archexin®)	*Hepatocellular Carcinoma*	>$2B	→		

*Company estimates based on information from Datamonitor, Decision Resources and Global Data reports as of January 2018

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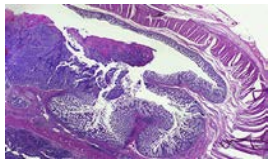
Advancing Our Product Pipeline

DRUG CANDIDATE	POTENTIAL INDICATION	STATUS	MARKET OPPORTUNITY(1)
RX-3117	Metastatic Pancreatic Cancer	Phase 2	>$3B
	Advanced Bladder Cancer	Phase 2	>$1B
RX-5902	Triple Negative Breast Cancer	Phase 2	>$6B
RX-0201	Hepatocellular Carcinoma	Pre-clinical	>$2B


(1) Company estimates based on information from Datamonitor, Decision Resources and Global Data reports as of January 2018

RX-3117: A Next Generation Nucleoside Compound

The Candidate

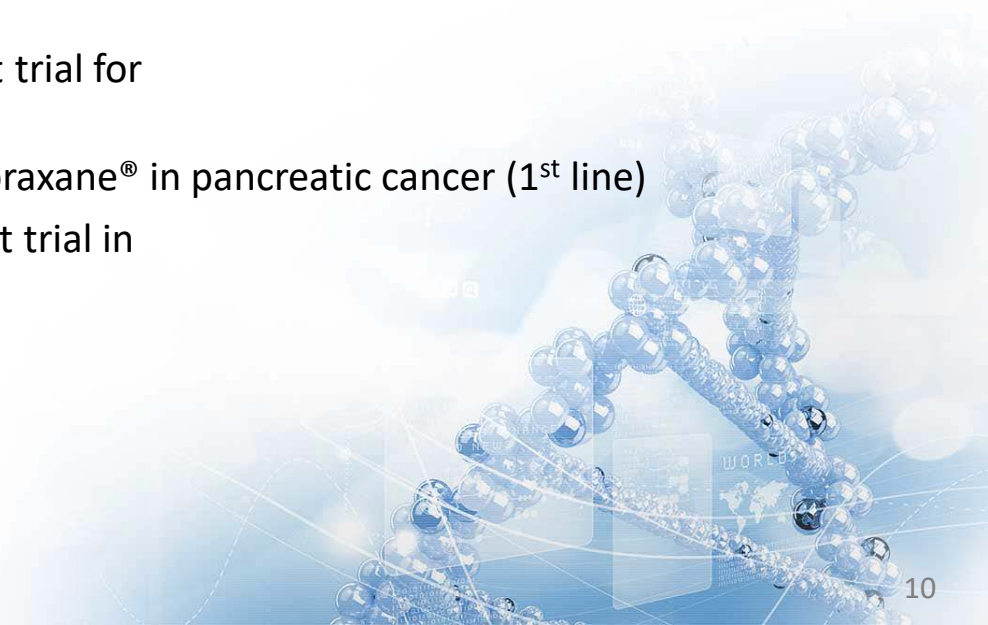
- Small molecule nucleoside analogue similar to gemcitabine but cancer cell specific
- Prodrug activated by UCK2 which is predominantly present in cancer cells
- Active following oral administration
- Broad spectrum anti-cancer activity and active against gemcitabine resistant cancers

Significant Unmet Medical Need

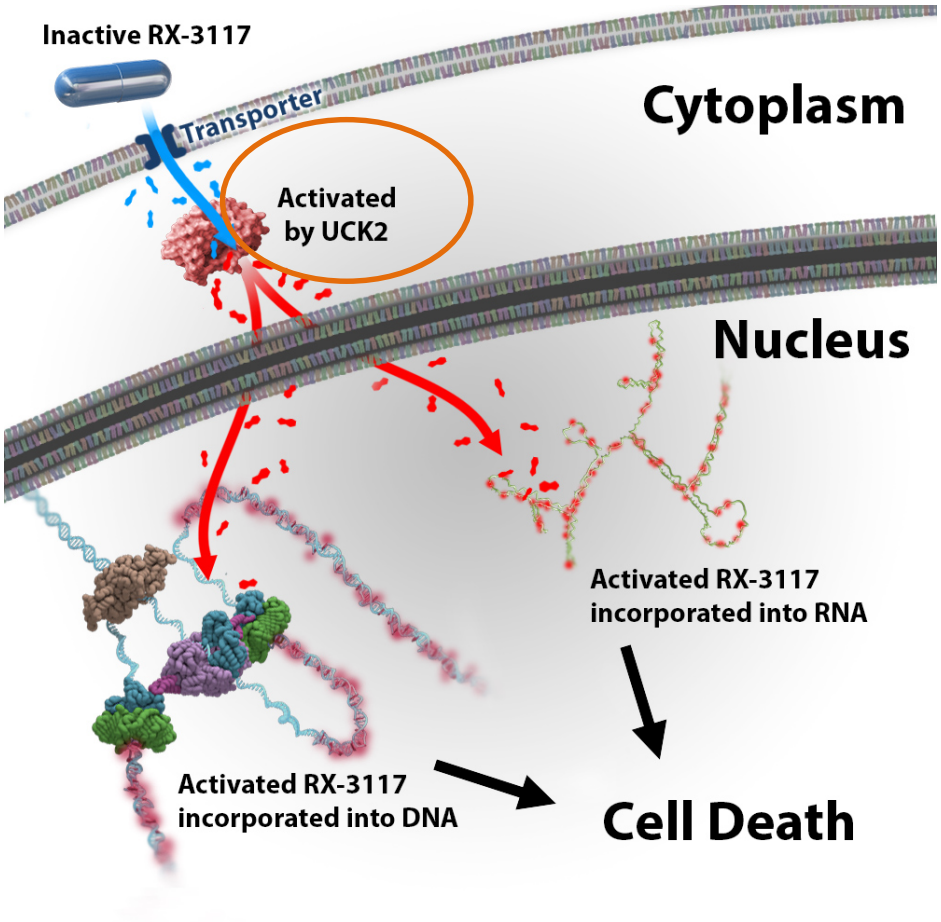
- Metastatic pancreatic and advanced bladder cancer
- Orphan drug designation for pancreatic cancer

Clinical Development – Status

- Completed Phase 2a clinical proof-of-concept trial for metastatic pancreatic cancer (3rd line)
- Initiated Phase 2a combination study with Abraxane® in pancreatic cancer (1st line)
- Completing Phase 2a clinical proof-of-concept trial in advanced bladder cancer (3rd line)



RX-3117: A Selectively Activated Nucleoside Analogue



- Activation enzyme (UCK2) found only in cancer cells
- Targeted approach enhances safety and efficacy
- RX-3117 is active against cancers that have developed resistance to gemcitabine
- Proven mechanism of action reduces development risk

RX-3117 MOA supports a biomarker strategy for patient selection

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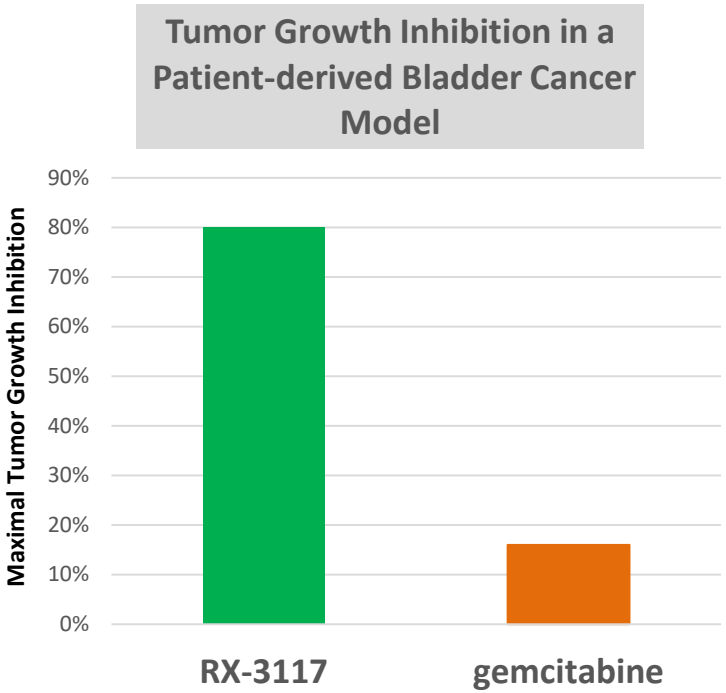
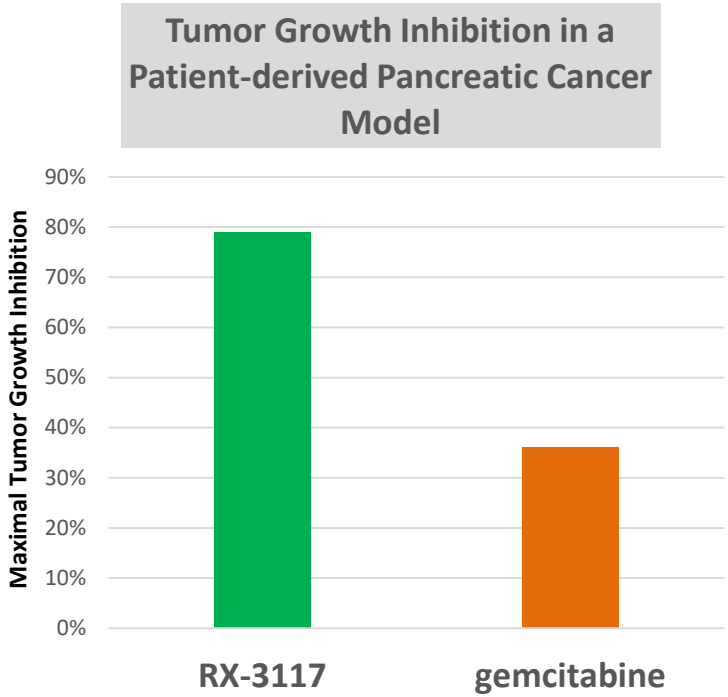
Strong Preclinical Data Supports Lead Indications

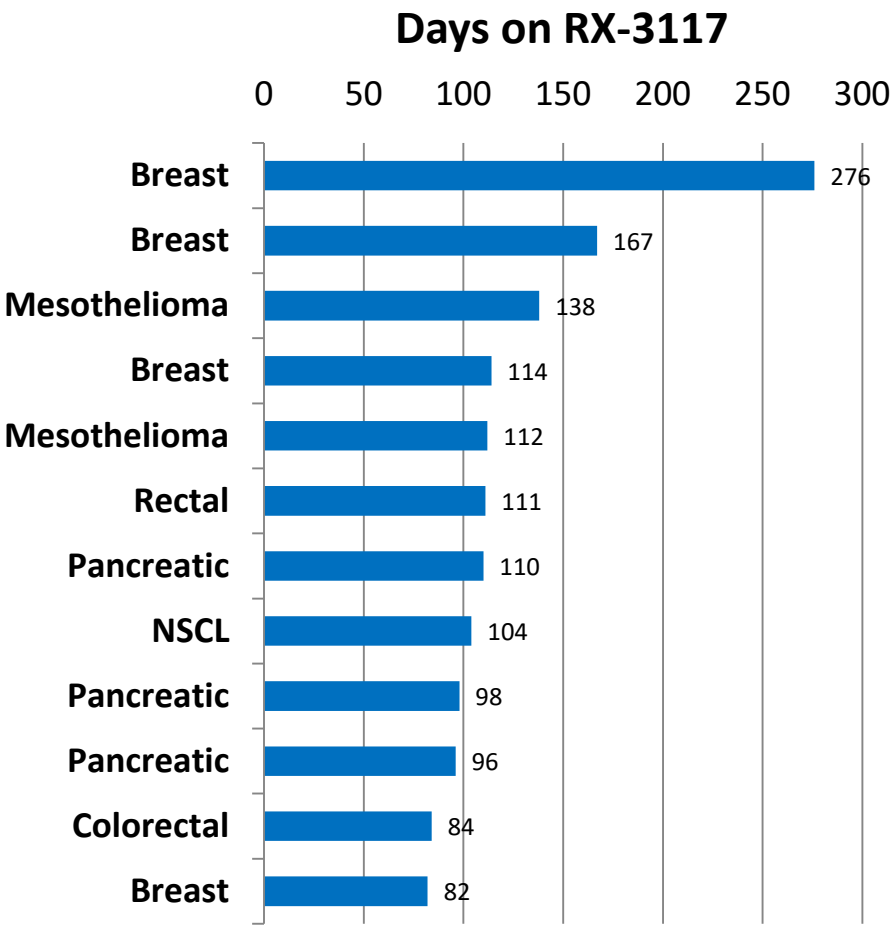
RX-3117 is more effective than gemcitabine in preclinical models of pancreatic and bladder cancer





RX-3117 Completed Phase Ib Trial

- 74% of patients had received 3 or more prior cancer therapies
- Evidence of single-agent activity
- Stable disease achieved in 12 patients persisting up to 276 days
- Tumor burden reduction in 3 patients; Pancreatic, Breast (15% reduction in a liver lesion), Mesothelioma (9% in tumor volume)
- RX-3117 was safe and well tolerated at recommended Phase 2a dose with only mild/moderate adverse events



Data resented at ASCO 2016

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RX-3117 Development in Pancreatic and Bladder Cancer

HIGH UNMET MEDICAL NEED

- Advanced Pancreatic Cancer – poor prognosis; short survival
- Advanced Bladder Cancer – limited treatment choices

COMMERCIAL POTENTIAL

- **Pancreatic Cancer** – U.S. 49,000 new cases/40,000 deaths (2015)
- **Bladder Cancer** – U.S. 74,000 new cases/16,000 deaths (2015)

REGULATORY / CLINICAL PATH TO MARKET

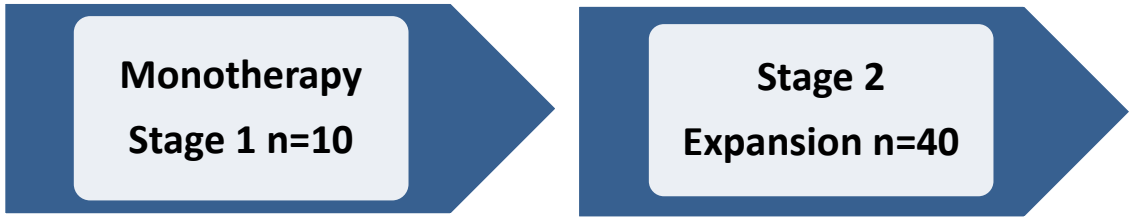
- Accelerated pathway for high unmet medical need indications
- Well defined development pathway

PRECLINICAL / CLINICAL DATA

- Robust *in vitro* activity and *in vivo* data demonstrating efficacy
- Initial evidence of single agent activity of RX 3117 - stable disease and tumor response in ongoing Phase 2a clinical trials

RX-3117 Pancreatic Cancer Clinical Development Plan

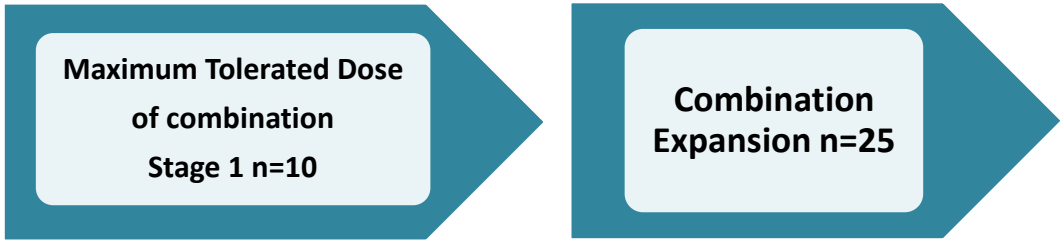
Phase 2a MONOTHERAPY THIRD LINE



Smallest market segment
Completed Stage 2
Data presented at 2018 ASCO-GI
Facilitates progressing into first line therapy in combination with Abraxane

Phase 2a COMBINATION WITH ABRAXANE FIRST LINE

Largest market segment
Initiated Q4 2017
>$3B Market Opportunity



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Pancreatic Cancer Phase 2a Study Design

Patient Population	▪ Relapsed and refractory metastatic pancreatic cancer
Study Design	▪ Multicenter, open-label, single agent, 2-stage design ▪ Part 1: 10 patients ▪ Part 2: Option to enroll 40 additional patients if predefined primary efficacy criteria are achieved in part 1
Dosing Schedule	▪ 700 mg; 5x weekly dosing; 3 weeks on/1 week off
Efficacy Criteria	▪ ≥ 4 month increase in PFS in 20% of patients; or ▪ ≥ 1 PR or CR; or ▪ For pancreatic cancer: tumor biomarker CA 19-9 (50% reduction), and improvement of overall clinical benefit in 20% of patients
Endpoints	▪ Time to disease progression; overall response rate; duration of response ▪ Pharmacokinetics and safety

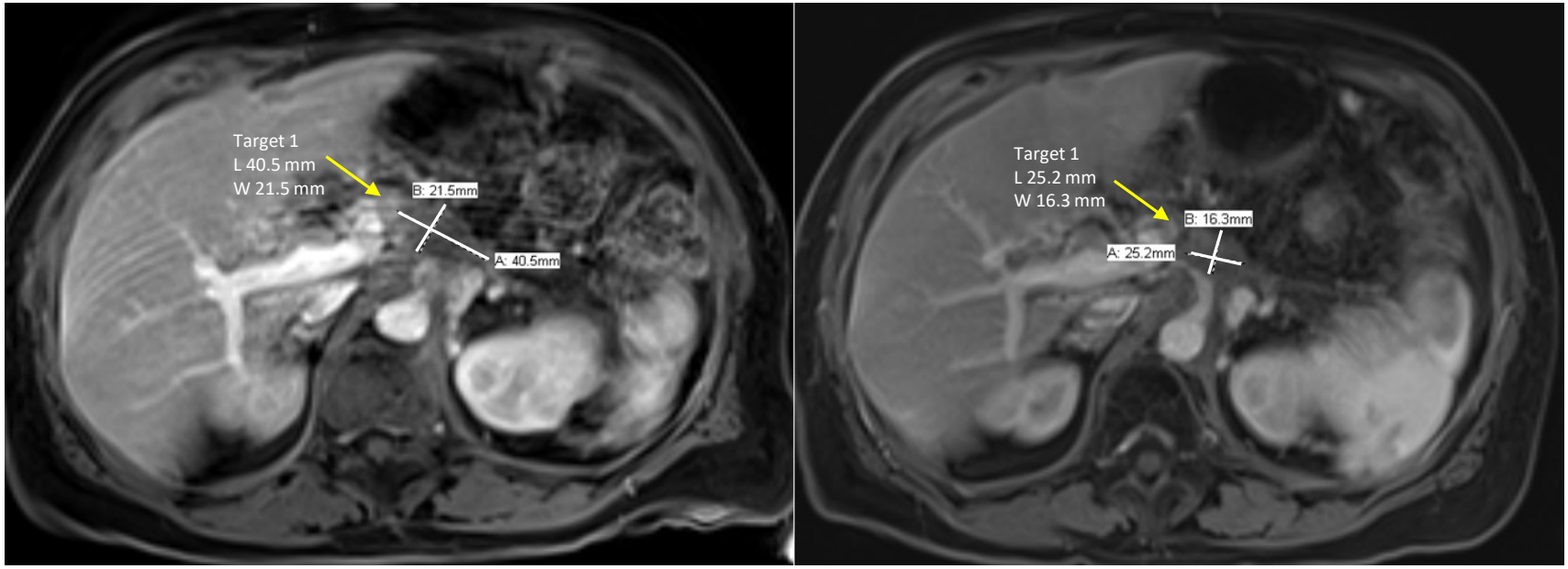
RX-3117 Phase 2a Pancreatic Monotherapy Clinical Trial

- 46 patients, 43 response evaluable
- 78% percent of the patients had received two or more prior cytotoxic therapies
  - Expected median survival of 1.5 months
  - 93% of the patients had progressed after receiving gemcitabine therapy
- 31% of patients had disease stabilization for two months or more
  - Compares favorably to published data in second line patients where gemcitabine produced disease stabilization in 17% of the patients[1]
- One patient had a partial response (32.7% reduction in total tumor volume)
- Confirms that RX-3117 is safe and very well tolerated

1. Fernandes BM et al. J Clin Oncol 2017;35:4 suppl. 489

RX-3117 Phase 2a Pancreatic Monotherapy Clinical Trial

- Prior Therapies:
  - Gemcitabine and Abraxane
  - FOLFIRI (folinic acid, 5-fluorouracil, irinotecan)
  - Rt salpingo-oophorectomy, pelvic mass, partial omenectomy, tumor debulking
  - Palliative radiotherapy to pancreatic primary mass
- 32.7% reduction in total tumor volume after 1 cycles of treatment)



CT scan with contrast: markings represent borders of tumor

A: Baseline image, B: Image following 1 cycle of treatment

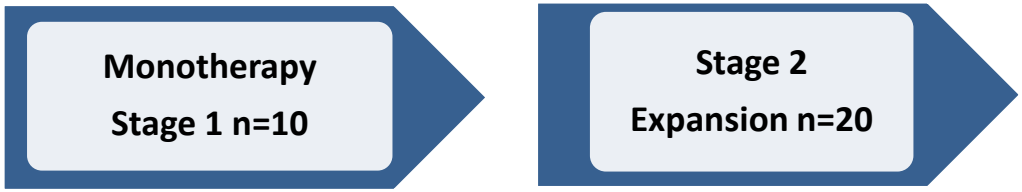
Data from ASCO GI January 2018

RX-3117: Phase 2a Combination Study with Abraxane® in Newly Diagnosed Pancreatic Cancer Patients

- Study initiated in Q4 2017
- Stage 1: Determination of maximum tolerated dose (MTD) of combination
  - Determination of doses for Stage 2 expected Q2 2018
- Stage 2: Expansion cohort (n=25) at MTD
- Preliminary efficacy read out Q4 2018

RX-3117 Bladder Cancer Development Plan

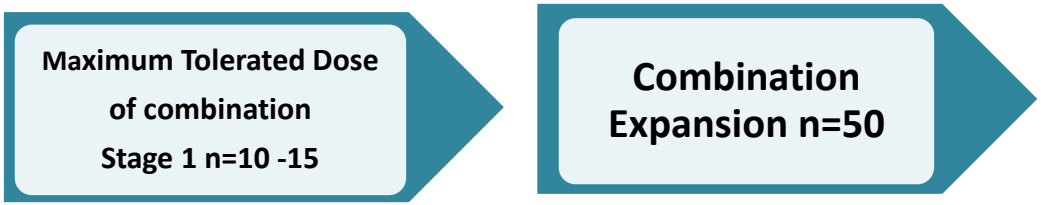
Phase 2a MONOTHERAPY THIRD LINE



Monotherapy study in third line patients necessary to support studies in first line patients. Enrollment expected to complete Q1 2018

Phase 2a COMBINATION WITH OTHER AGENTS IN FIRST LINE

Largest market segment
Target indication is first line use
Evaluating clinical protocols to advance RX-3117 into first line patients
>$1B Market Opportunity



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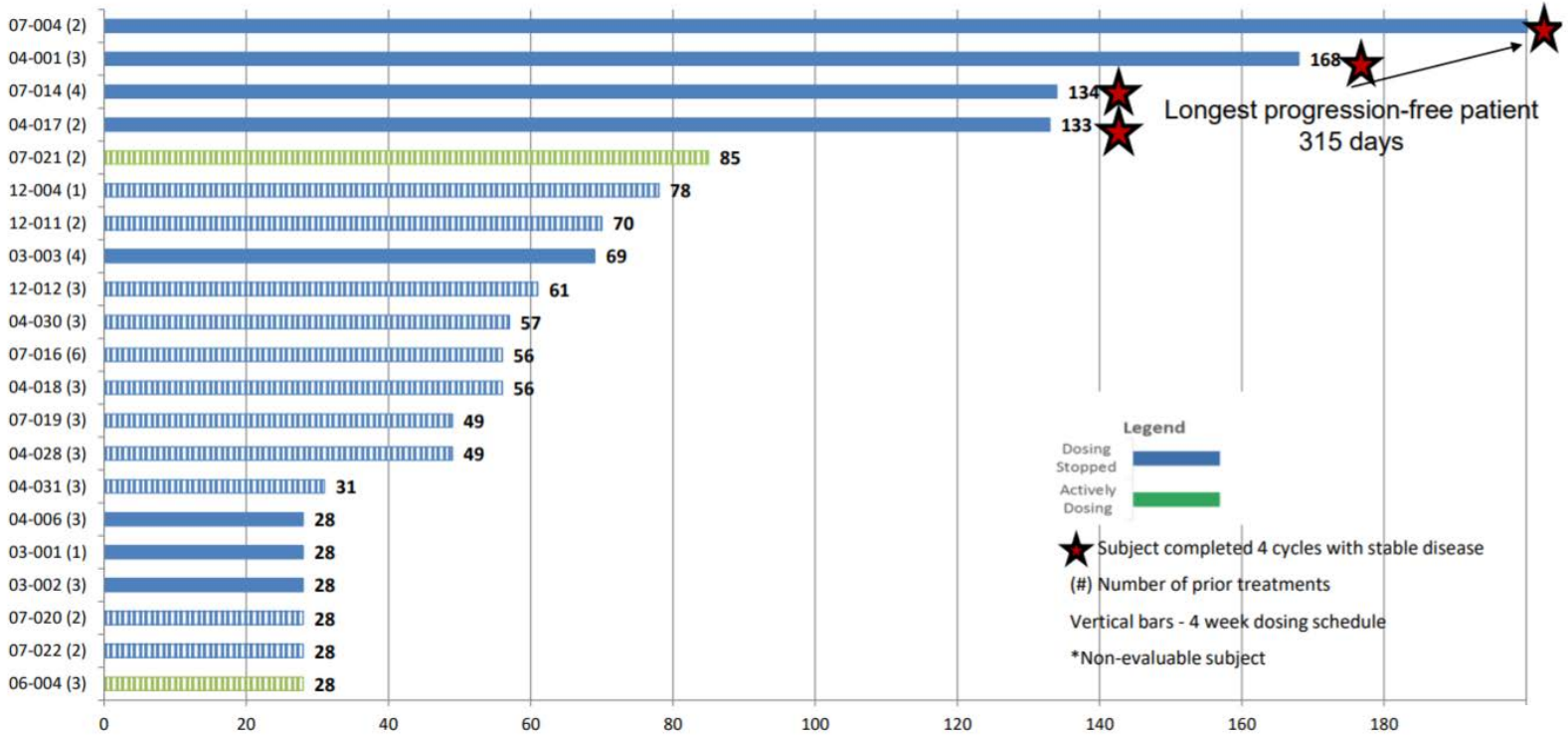
RX-3117 Phase 2a Bladder Cancer Clinical Trial Design

Patient Population	▪ Metastatic bladder cancer
Study Design	▪ Multicenter, open-label, single agent, 2-stage design ▪ Part 1: 10 patients ▪ Part 2: Option to enroll 20 additional patients if predefined primary efficacy criteria are achieved in part 1
Dosing Schedule	▪ 700 mg; 5x weekly dosing; 3 weeks on/1 week off
Efficacy Criteria	▪ $\geq$ 4 month increase in PFS in 20% of patients; or ▪ $\geq$ 1 PR or CR
Endpoints	▪ Time to disease progression; overall response rate; duration of response ▪ Pharmacokinetics and safety

Phase 2a Data:
RX-3117 Monotherapy in Advanced Bladder Cancer

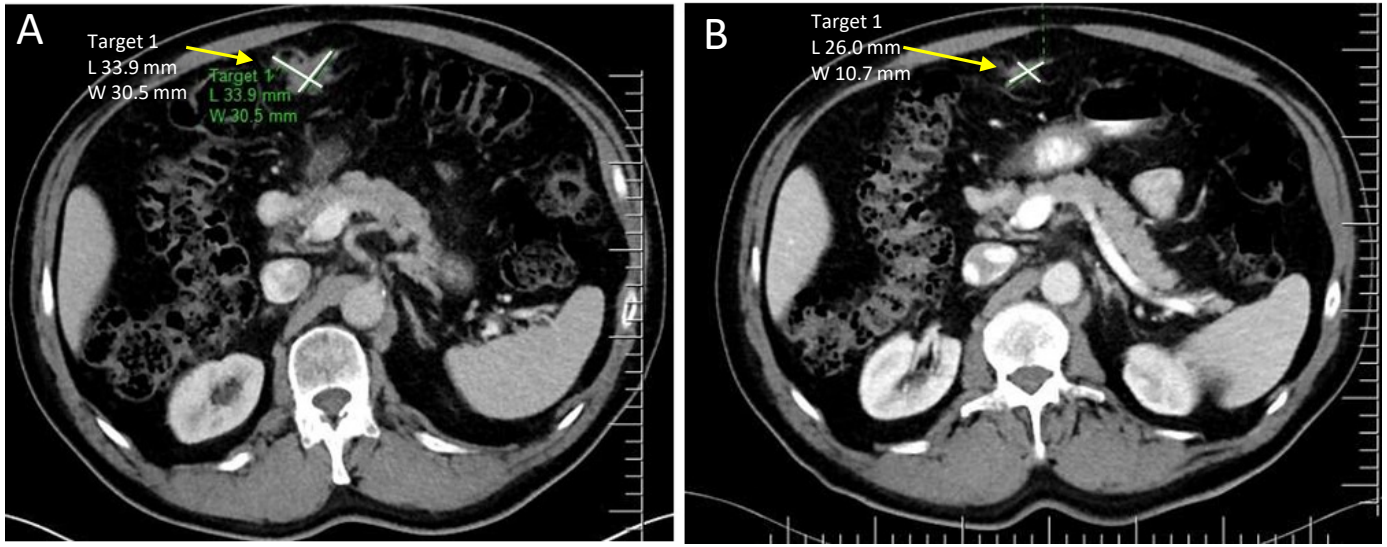


- 60% of patients had three or more prior cancer therapies, including gemcitabine in combination with cisplatin, carboplatin and/or immunotherapy
- Disease control at 8 weeks was 35%
- Four patients on treatment for >5 months without disease progression
  - One patient at 9 months without disease progression
- Tumor reduction seen in 5 patients

Data presented at ASCO-GU February 2018
Number in parenthesis indicate the number of prior therapies the patient received
Number after each bar indicates how long the patient had stable disease

RX-3117: Patient 06-004

- Prior Therapies
  - MVAC - 4 months; completed therapy
  - Herceptin® and pertuzumab for 25 months; discontinued due to disease progression
  - Oncolytic virus and pembrolizumab for 3 months; discontinued due to disease progression
- Following one cycle of treatment with RX-3117 there was a 23% reduction in tumor size



CT scan with contrast: markings represent borders of tumor

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Data from ASCO GU January 2018

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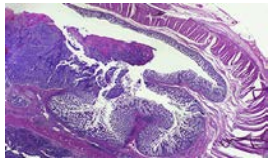
Advancing Our Product Pipeline

DRUG CANDIDATE	POTENTIAL INDICATION	STATUS	MARKET OPPORTUNITY(1)
RX-3117	Metastatic Pancreatic Cancer	Phase 2	>$3B
	Advanced Bladder Cancer	Phase 2	>$1B
RX-5902	Triple Negative Breast Cancer	Phase 2	>$6B
RX-0201	Hepatocellular Carcinoma	Pre-clinical	>$2B


(1) Company estimates based on information from Datamonitor, Decision Resources and Global Data reports as of January 2018

RX-5902 is a Potential First-in-Class Inhibitor of a Unique Cancer Protein

The Candidate

- Orally active, highly potent small molecule inhibitor of phosphorylated p68 (p-p68)
  - Modulates β-catenin/Wnt pathway
  - Increases immunogenicity of cancer cells

Significant Unmet Medical Need

- Demonstrated activity in >100 human cancer cell lines including: triple-negative breast, ovarian, pancreas, non small cell lung cancer, colon, melanoma and renal cancer

Clinical Development – Status

- Completed Phase 1 clinical trial with RX-5902 in cancer patients and determined recommended Phase 2a dose
  - Final clinical data presented at ESMO (September 2017)
- Dosed first patient in a Phase 2a clinical proof-of-concept study in metastatic triple negative breast cancer
  - Initial data read out Q2 2018

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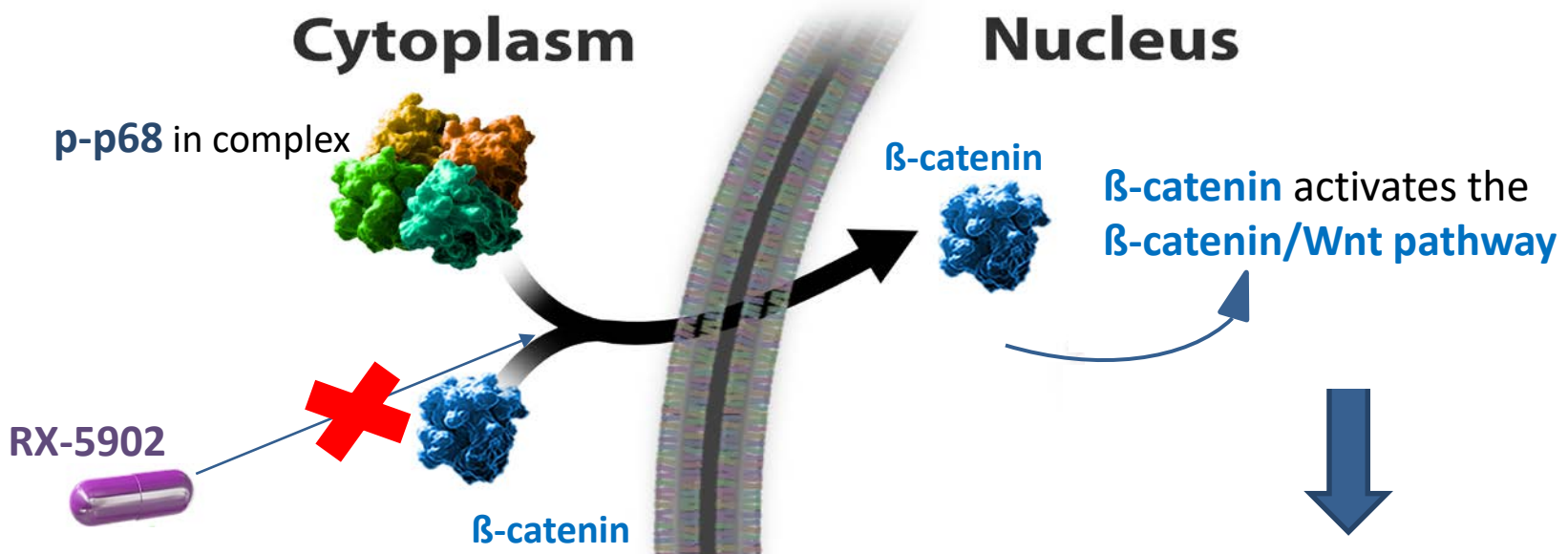
Novel Mechanism of Action on Key Cancer Pathway

p-p68 promotes cancer growth and metastases through β-catenin/Wnt pathway



- **p-p68** forms a complex with **ß-catenin** and transports it into the nucleus
- **RX-5902** binds to p-p68 and **inhibits ß-catenin** transport into the nucleus
  - Decreased cancer cell growth
  - Increased cancer cell immunogenicity

Decreased T-cell infiltration, Increased oncogene expression, cancer cell proliferation, migration and metastases

p-p68 is found only in tumor cells

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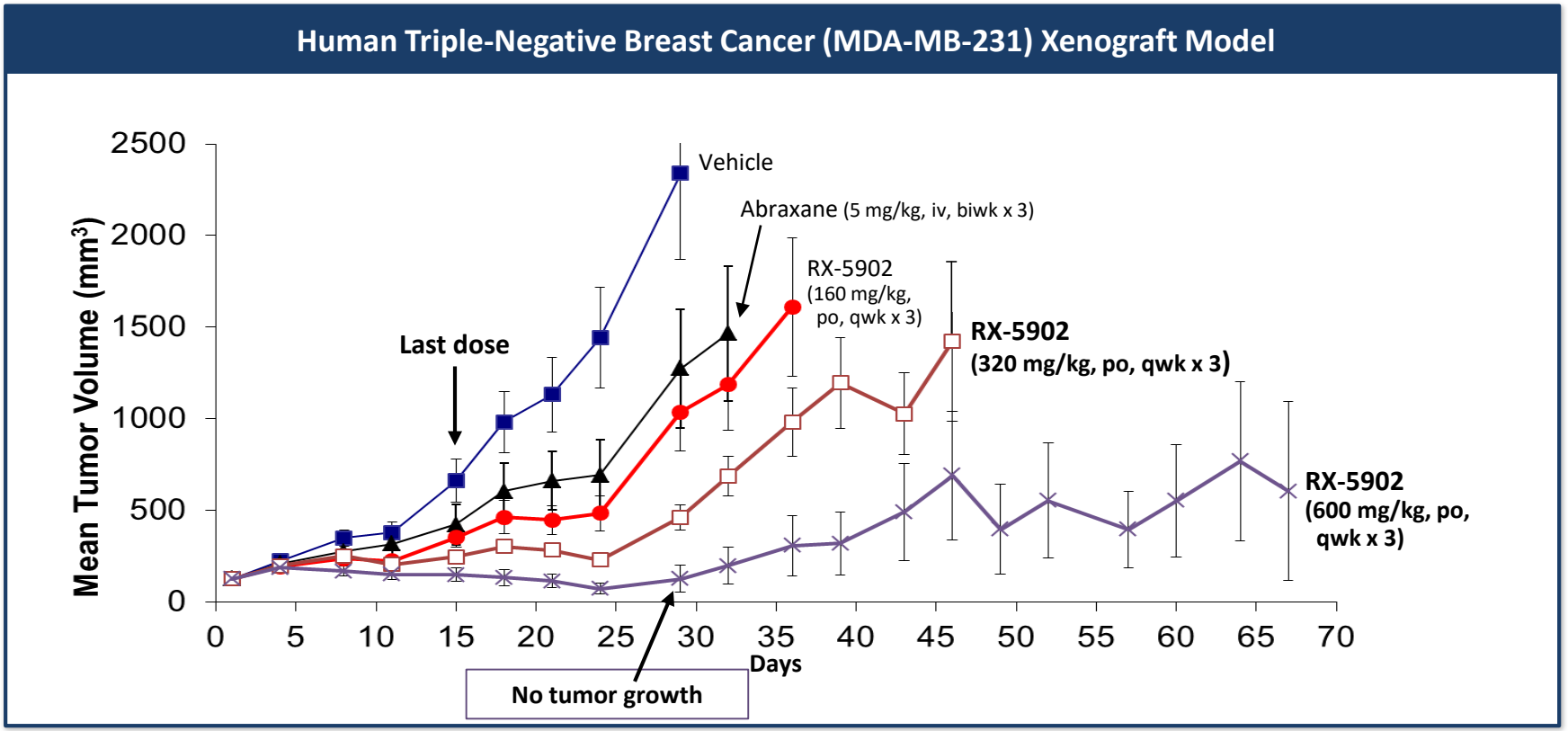
RX-5902 inhibits the growth of human triple negative breast cancer cells in preclinical models



Large opportunity: Triple negative breast cancer represents 20% of breast cancer diagnoses with limited treatment options; potential rapid path to market

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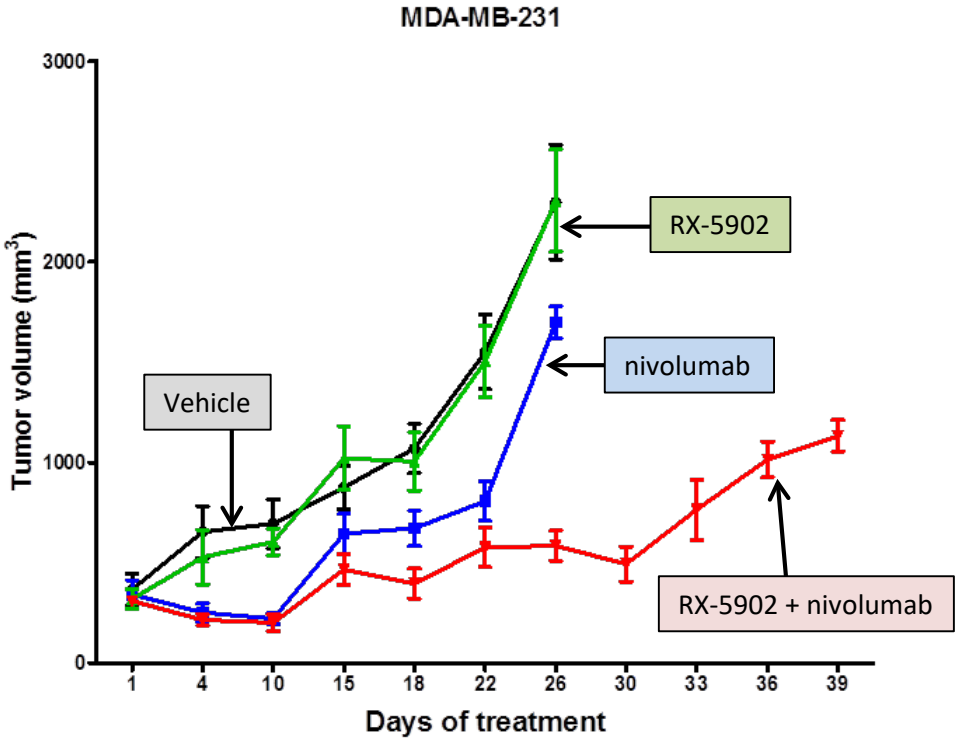
RX-5902 Potentiates the Efficacy of a Checkpoint Inhibitor in Preclinical Models

- RX-5902 enhanced the efficacy of nivolumab (Opdivo®) in a humanized mouse xenograft model of TNBC
  - Modulation of the β-catenin/Wnt pathway by RX-5902 increases the effectiveness of nivolumab (Opdivo®)



Treatment Group	Tumor Growth Inhibition*
Vehicle	-
RX-5902	0%
nivolumab (Opdivo®)	32%
RX-5902 + nivolumab	**85%**

*Tumor growth inhibition at Day 26

*Data presented at the San Antonio Breast Cancer meeting December, 2017

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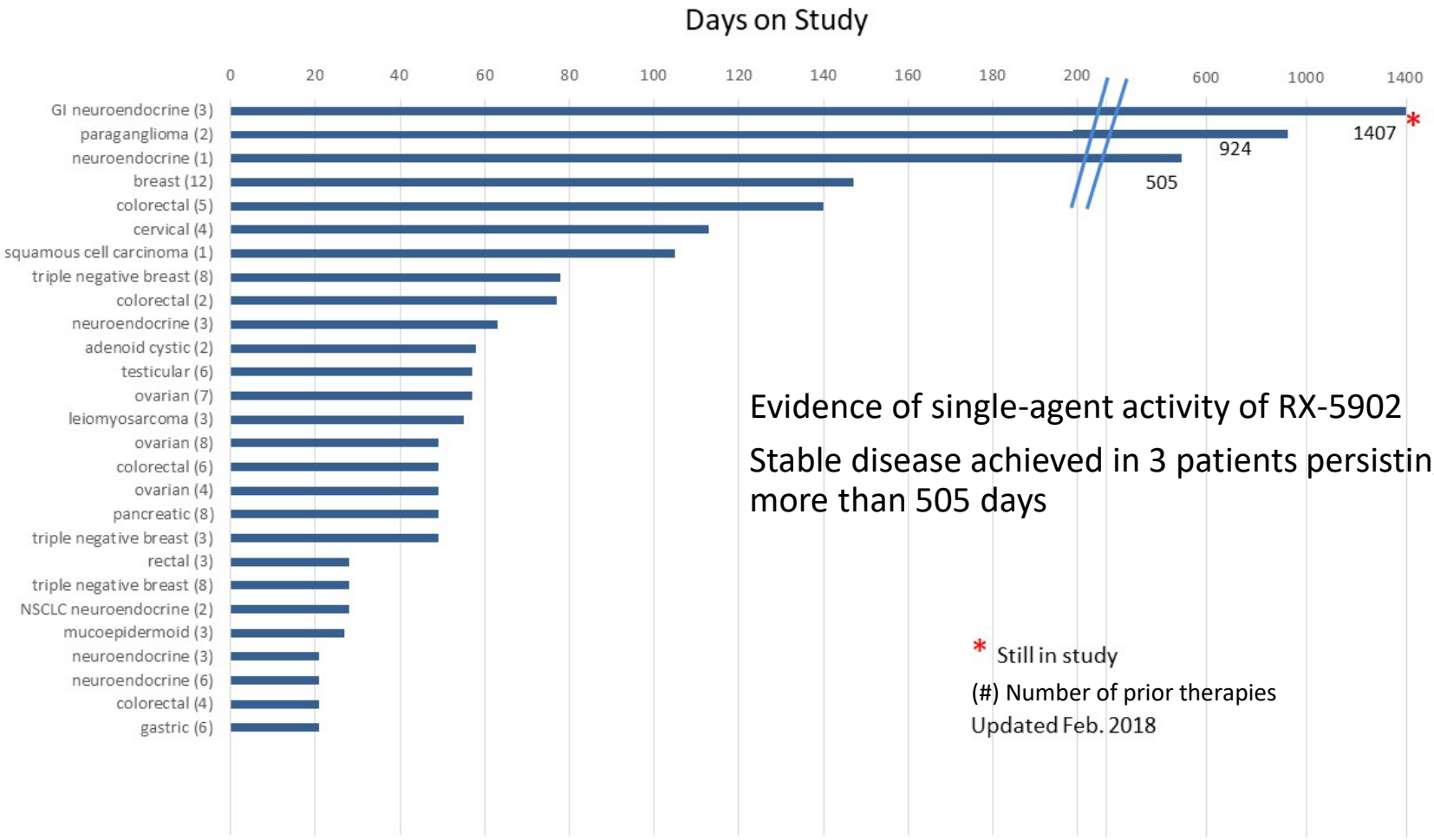
Tumor Responses in Phase 1 Clinical Trial of RX-5902

- 64% of patients had received 4 or more, prior cancer therapies
- Safe and well tolerated with no Grade 3 or Grade 4 adverse events



Evidence of single-agent activity of RX-5902

Stable disease achieved in 3 patients persisting more than 505 days

* Still in study

(#) Number of prior therapies

Updated Feb. 2018

Triple Negative Breast Cancer Selected for Phase 2a Clinical Proof-of-Concept Study

HIGH UNMET MEDICAL NEED

- Triple Negative Breast Cancer (TNBC) – no approved therapy; poor prognosis

COMMERCIAL POTENTIAL

- TNBC represents approximately 15-20% of breast cancer diagnoses

REGULATORY / CLINICAL PATH TO MARKET

- Accelerated / breakthrough regulatory pathway for high unmet medical need indications

CLINICAL / PRECLINICAL DATA

- Robust *in vitro* activity and *in vivo* data demonstrating efficacy
- P-p68/ β-catenin pathway implicated in TNBC

RX-5902 Clinical Trial Status

- Phase 2a: Metastatic Triple Negative Breast cancer
  - Stage 1: enroll 10 metastatic triple negative breast cancer patients who have failed 2 (or more) prior therapies
    - Progression free survival (PFS) and tumor progression
    - Initial data read out Q2 2018
  - Stage 2: enroll additional patients, if warranted, based on the data readout from the initial cohort of patients
- Evaluating potential combination trials of RX-5902 with other anti-cancer agents in TNBC

Advancing Our Product Pipeline

DRUG CANDIDATE	POTENTIAL INDICATION	STATUS	MARKET OPPORTUNITY[(1)]
RX-3117	Metastatic Pancreatic Cancer	Phase 2	>$3B
	Advanced Bladder Cancer	Phase 2	>$1B
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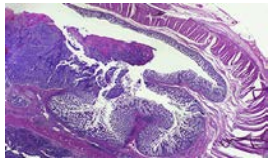


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RX-0201: Potential Best-in-Class AKT-1 Inhibitor

- Novel inhibitor of cancer cell signaling protein, AKT-1, increasing cancer cell death
  - Targets clinically validated cancer pathway
  - Inhibits drug resistance; synergistic with approved drugs
- PI3K/AKT-1/mTOR pathway involved in cancer cell growth and proliferation
  - AKT-1 Inhibition blocks the development of resistance to mTOR and Tyrosine Kinase inhibitors
  - Block the growth and proliferation of cancer cells
- Pre-clinical models of demonstrate potential of RX-0201
  - Decreases proliferation/growth of cancer cells
  - Decreases new blood vessel growth
  - Decreases drug resistance to existing therapies
- Re-focusing clinical development on hepatocellular carcinoma
  - Commercially viable market (>$2B)
  - Advancing program through funded collaboration

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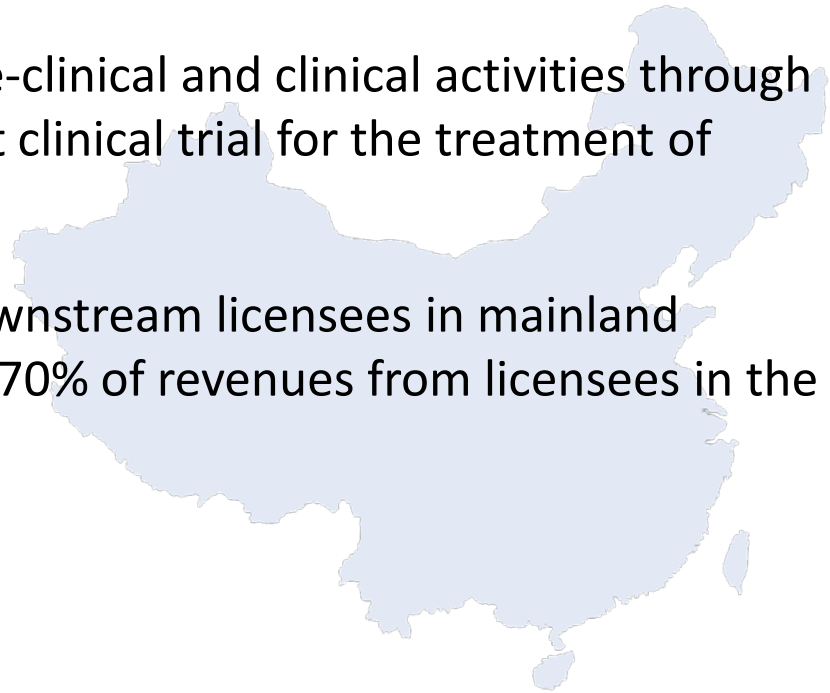
Zhejiang Haichang Biotechnology Collaboration

- Zhejiang Haichang Biotechnology Co., Ltd. is a privately owned specialized biotechnology company headquartered in Hangzhou, China, focused on the development and manufacture of complex intravenous pharmaceuticals
- Haichang will develop a nano-liposomal formulation of RX-0201 using its proprietary QTsome™ technology
- Haichang will fund the development of pre-clinical and clinical activities through completion of a Phase 2a proof-of-concept clinical trial for the treatment of hepatocellular carcinoma
- Rexahn retains 30% of economics from downstream licensees in mainland China, Hong Kong, Macau and Taiwan and 70% of revenues from licensees in the rest of the world



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2018 Key Milestones

	Upcoming 2018 Clinical Milestones	Timing
RX-3117	Presentation of clinical data from **Phase 2a** clinical Proof-of-Concept trial in 3rd line metastatic pancreatic cancer patients (monotherapy)	✓
	Determination of maximal tolerated dose (MTD) of combination of RX-3117/Abraxane in **Phase 2a** in newly diagnosed pancreatic cancer patients	2Q
	Interim clinical data from **Phase 2a** combination trial of RX-3117/Abraxane in newly diagnosed pancreatic cancer patients	4Q
	Completed data from **Phase 2a** trial of RX-3117 as 3rd line treatment of metastatic bladder cancer patients	2Q
RX-5902	Interim clinical data from **Phase 2a** trial of RX-5902 in triple negative breast cancer patients	2Q
	Initiation of **Phase 2a** combination trial of RX-5902 in newly diagnosed metastatic triple negative breast cancer patients	4Q
RX-0201	Enter into collaboration to advance program using non-dilutive funding	✓

Financial Summary

Exchange: Symbol	NYSE American: RNN
Common Shares Outstanding[1]	Outstanding: 31.7 million Fully Diluted: 42.7 million
Market Capitalization[2]	$68 million
Rescources[3]	Cash and Investments: $19.3 million Estimated Quarterly Burn: $5 million
Employees	17

[1]As of May 4, 2018; [2]Stock price as of May 7, 2018; [3]As of May 4, 2018

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