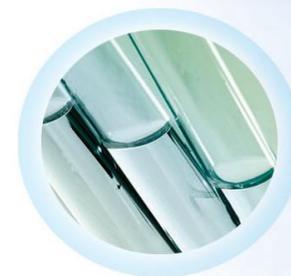


A Global Leader

in Oncolytic Immunotherapeutics



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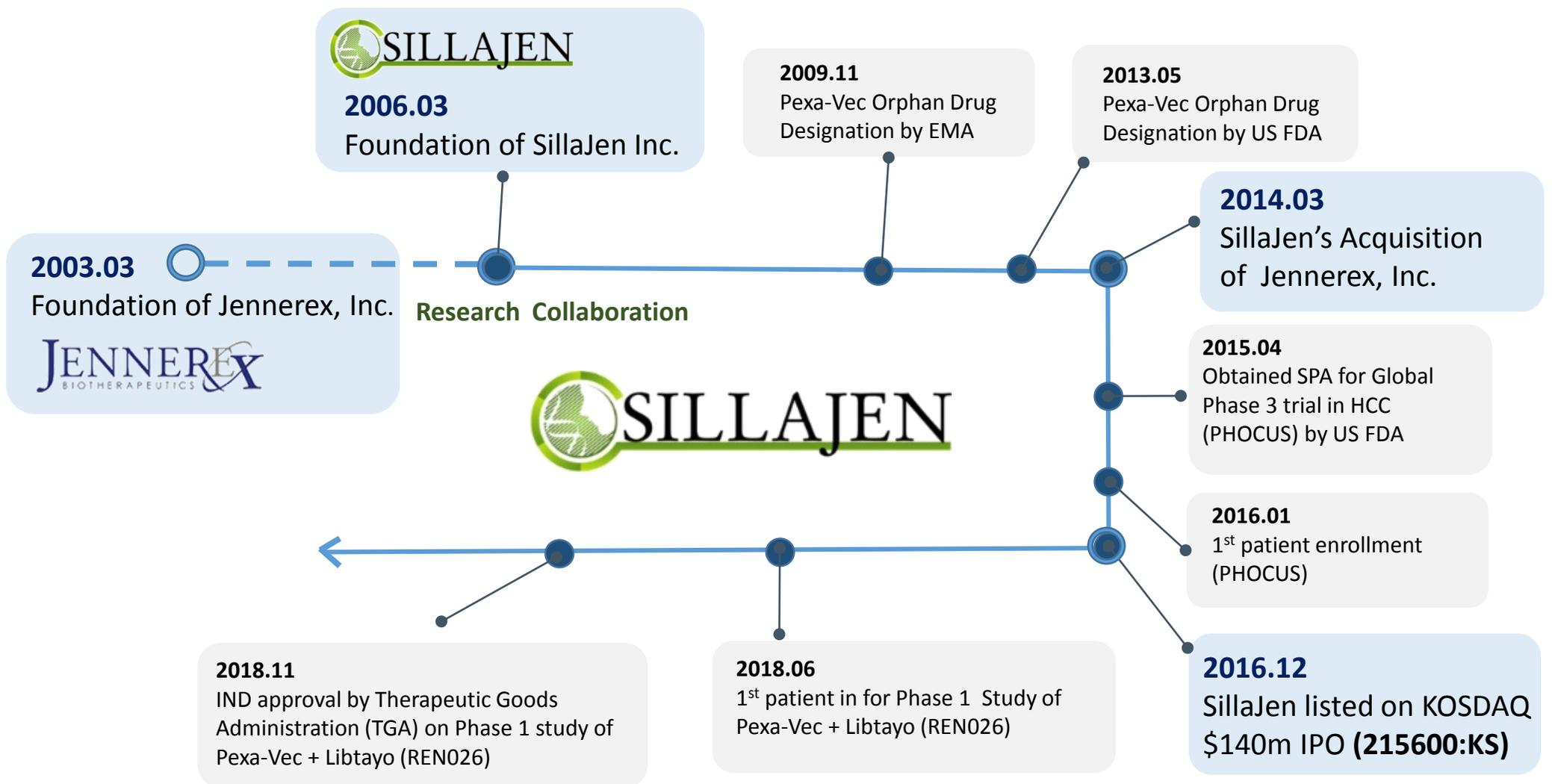
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Who We Are

Company History



SillaJen Overview

SILLAJEN INC. (215600:KS)

- Chairman and CEO: Dr. Eun Sang MOON, MD
- Founded in 2006 as a research collaborator to Jennerex, Inc.
- March 2014 acquisition of Jennerex
- \$140m IPO onto KOSDAQ in December 2016

Headquarters: Seoul



- Corporate Management
- Clinical Development
- Strategic Planning
 - Business Development
 - Finance
 - Legal

US Office: San Francisco



- Clinical Operations
- Regulatory Affairs
- Quality Assurance
- Technical Operations (CMC, Supply Chain)

Research Lab: Busan & Yangsan



- Research & Development
 - Pipeline Development
 - Pre-Clinical Research
 - Bio Assay

SillaJen's Focus: Immuno-Oncolytic Virus

Excellence

- Developing first-in-class, immuno-oncolytic virus (IOV) based on vaccinia virus
- Distinctive genetic engineering technology to modify virus
- Developing next generation IOVs based on SOLVE® platform

Growth

- Expandability to other solid tumor types
- Efficacious cancer treatment through unique, multiple mechanisms
- Used in combination to enhance existing blockbuster drugs: Big Pharma is racing to find their combination partners

Innovation

- **Orphan Drug designation:** Marketing Exclusivity
- Global clinical network through partnerships
- Technology built upon strong patent portfolio

Targeting, Attacking and Eradicating Cancer®

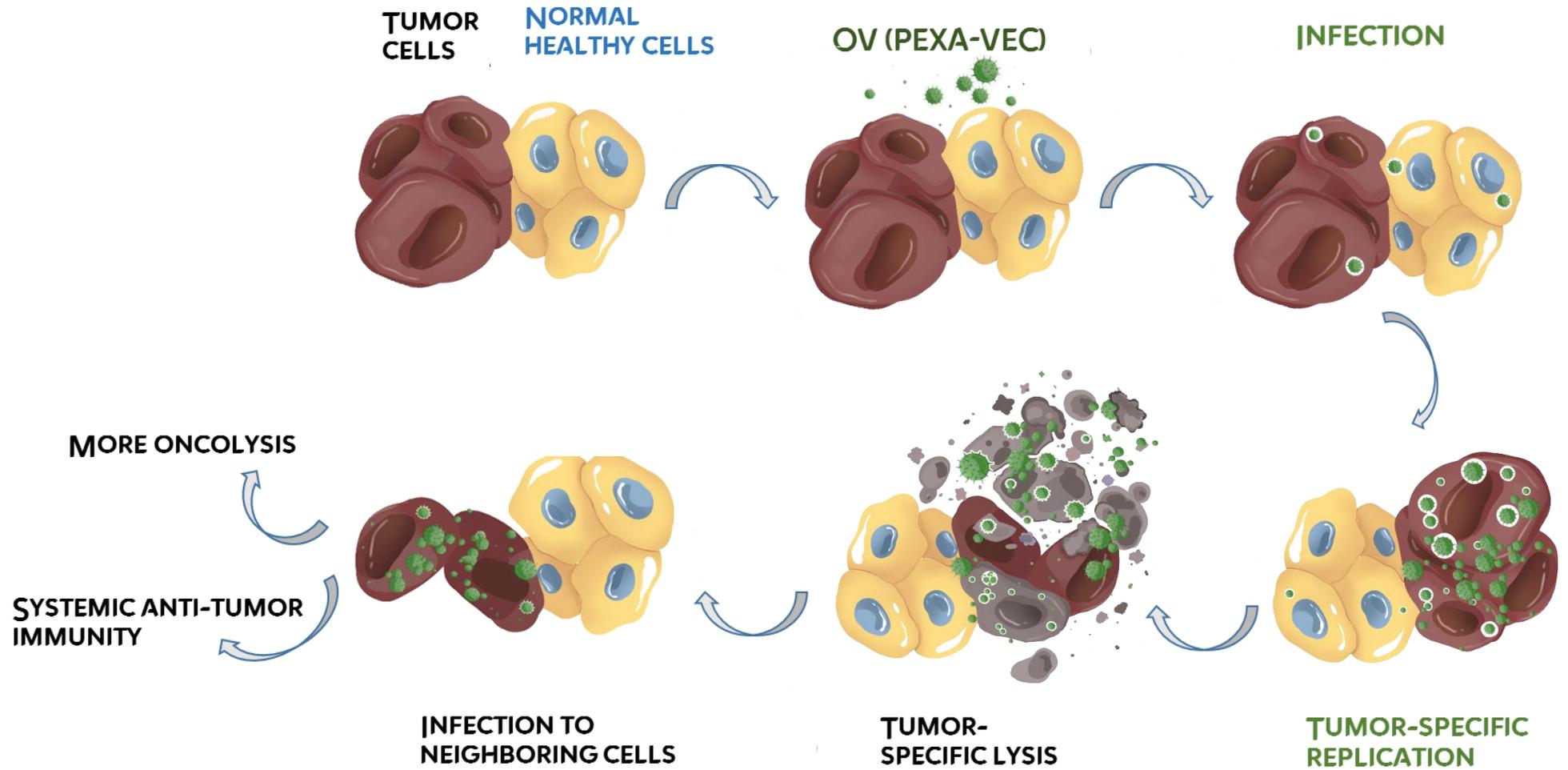
A Global Leader in Oncolytic Immunotherapeutics



WHAT WE DO: ONCOLYTIC VIRUS

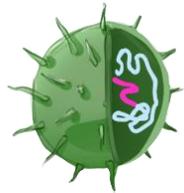
Oncolytic Virus

Tumor Selectivity

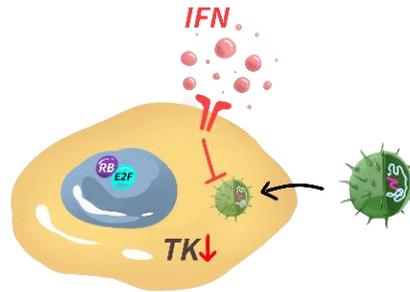


Tumor Targeting: Engineered to Exploit Pathways Commonly Activated in Tumors

Normal Cell

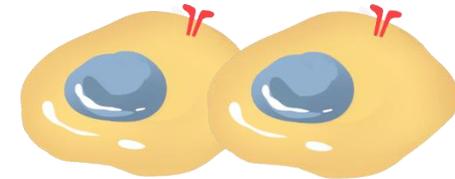


Pexa-Vec



Innate Defense

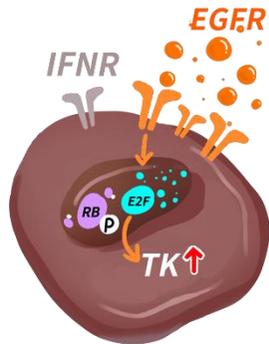
- Intact IFN signaling pathway
- Low TK activity



Intact

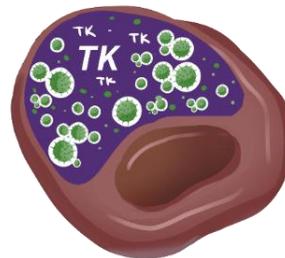
- Normal cells are **not damaged** as they have the natural ability to clear Pexa-Vec

Tumor Cell



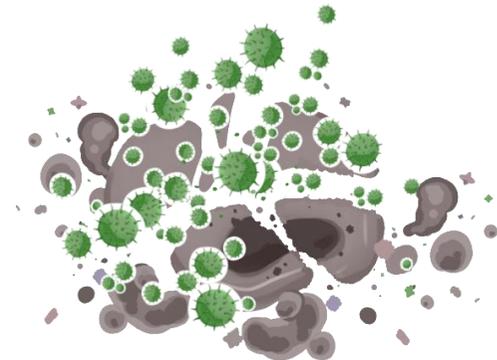
Tumor Cells

- Frequent mutations in the IFN pathway
- Abnormally activated cell growth pathways (e.g. EGFR pathway)
- Provides very high level of TK activity



Replication

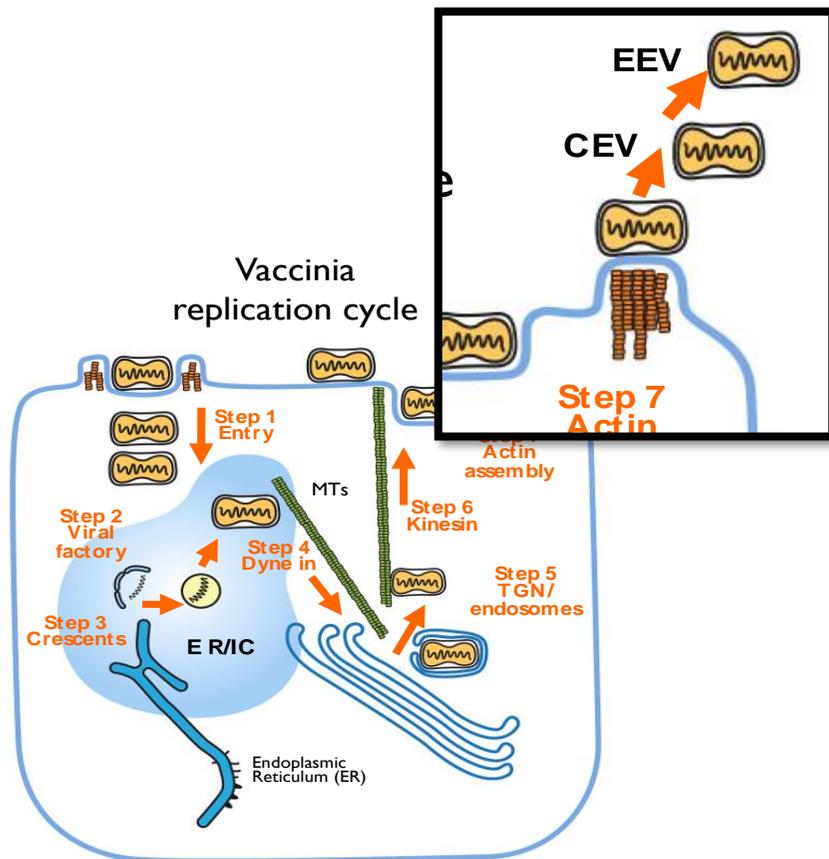
- TK-deficient Pexa-Vec is able to replicate its progeny in the tumor cells by exploiting the constitutively active TK



Oncolysis

- Tumor cells **destroyed** via vigorous replication of Pexa-Vec

Why Vaccinia as Oncolytic Immunotherapy Platform?



Harrison *et al*, *PNAS*2004

Safety

- Inoculated safely into millions of humans through smallpox vaccines
- Excellent, well-described safety profile

Intravenous

- Evolved for systemic spread: stable in blood
- Unique stealth EEV evades complement & antibody mediated clearance

Characteristic advantages

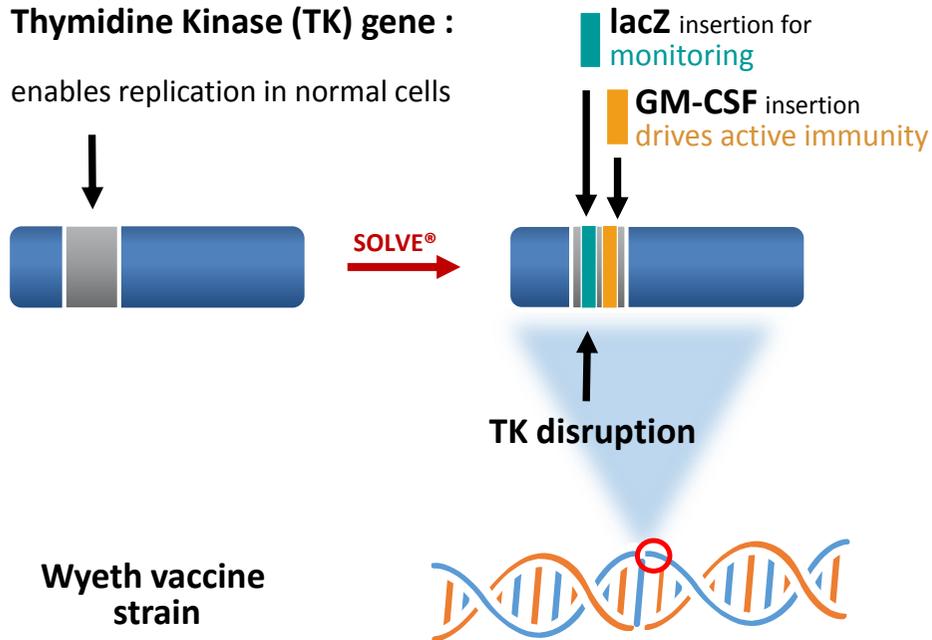
- Applicable for various tumor types
- Targets cancer cells and tumor vasculatures
- Large transgene arming capacity



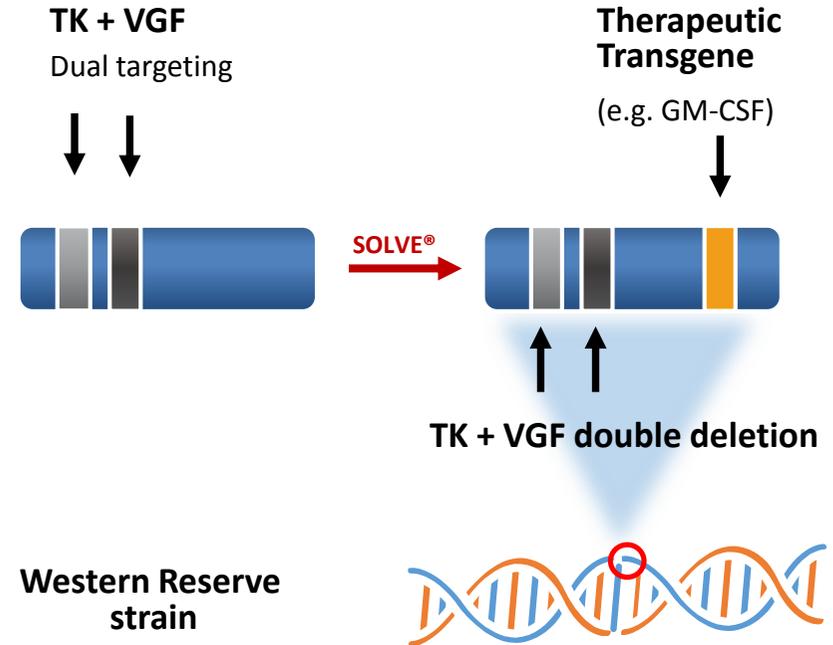
EXCELLENCE:
Pipeline, Mechanism of Action
and Competitive Advantages

SillaJen's Product Pipeline

Pexa-Vec (JX-594)



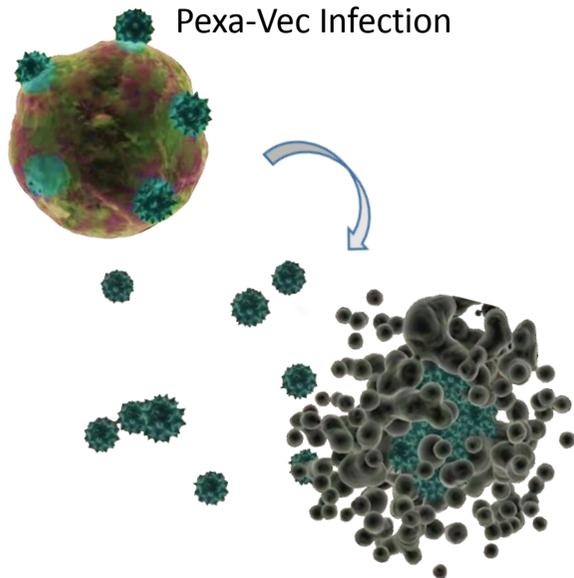
JX-900 Series



- Vaccinia virus (Wyeth and Western Reserve strains) Genetically modified via **SOLVE®** platform
- “Attenuation” via TK (**thymidine kinase**) gene inactivation:
 - Provides tumor selectivity & safety (VGF deletion in JX-900 for added safety)
- **GM-CSF** to activate systemic immunity (dendritic cell maturation, T-cell stimulant) against tumor
- **LacZ** as a marker gene

Multiple & Complementary Mechanism of Action

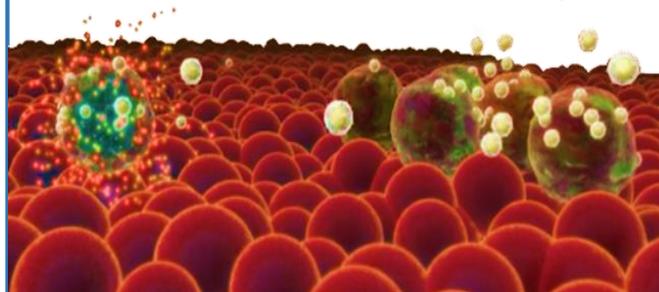
Direct Cell Lysis



Tumor-selective intratumoral replication of the virus leads to lysis of the infected cancer cell. Pexa-Vec then spreads to adjacent cancer cells and induce oncolysis

Adaptive Immune Response

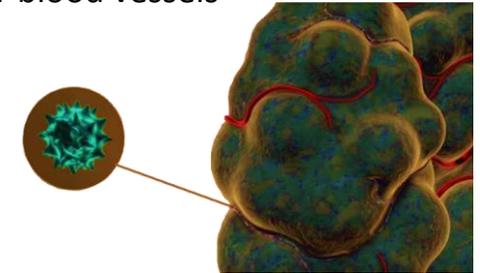
Induction of tumor-specific cytotoxic T-lymphocytes and expression of therapeutic transgene products (e.g. GM-CSF) enhances immune response against tumor



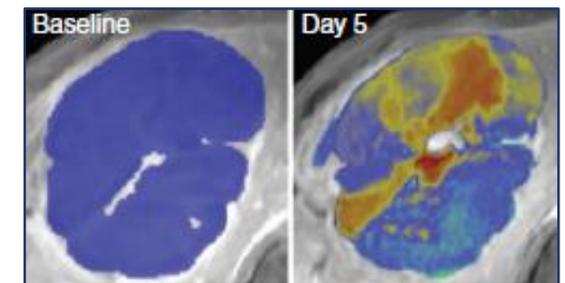
Direct Tumor Lysis

Vascular Shutdown

Pexa-Vec infects and destroys the rapidly dividing tumor endothelial cells. This leads to destruction of the tumor blood vessels

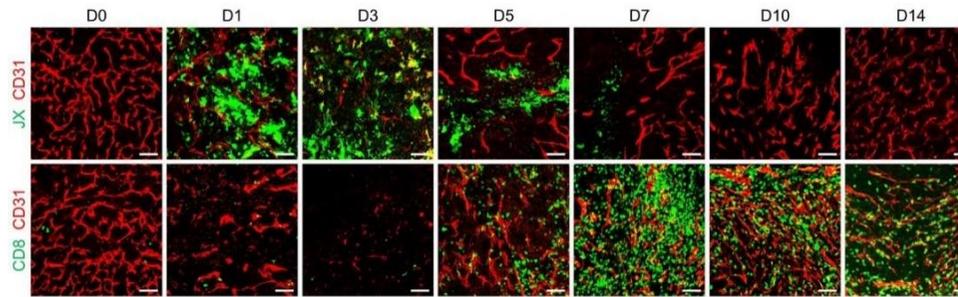


Blood supply to the tumor is disrupted following Pexa-Vec infection

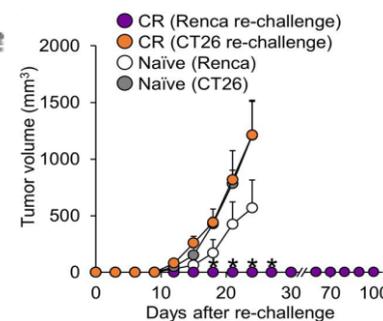
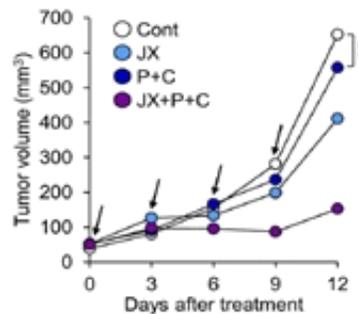
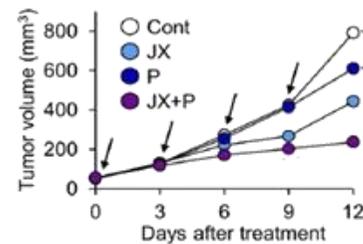
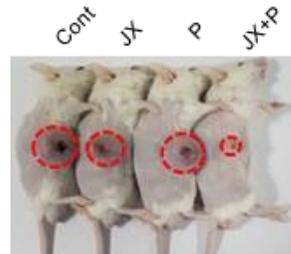


Remodeling of Tumor Microenvironment

Tumor Microenvironment Remodeling by Intratumoral Oncolytic Vaccinia Virus Enhances the Efficacy of Immune-Checkpoint Blockade

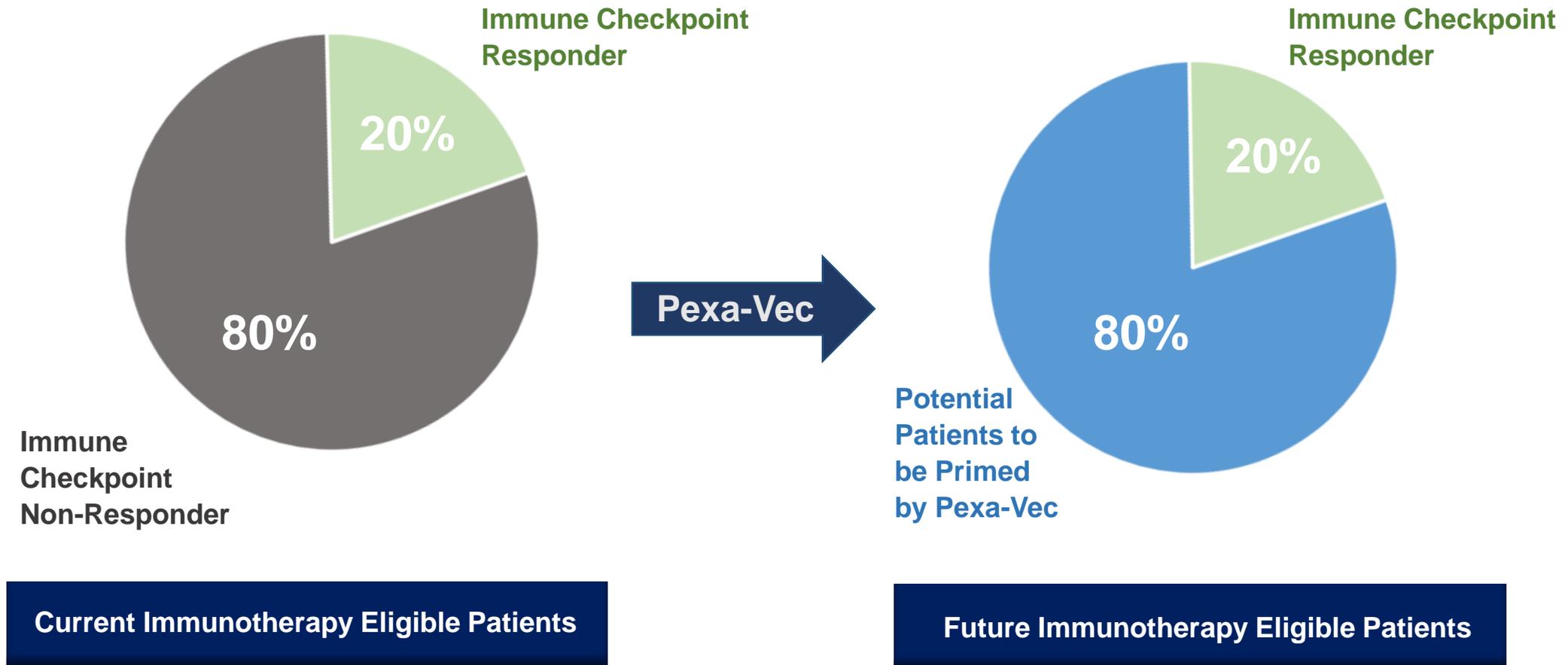


- Pexa-Vec treatment induces dramatic remodeling of TME.
- Accumulation of CD8⁺ T cells.



- Cold tumors primed by Pexa-Vec acquire responsiveness to ICIs.
- Cured mice are resistant to re-challenging of the same tumor cells – Establishment of adaptive immunity by memory T cells.

Remodeling of Tumor Microenvironment



Pexa-Vec's Competitive Advantages

Excellent Safety Profile



Long-standing safety profile
Transient Flue-Like Symptoms

Multiple Route of Administration



Intravenous Delivery (IV)
Intra-tumoral Injection (IT)

Efficient Manufacturing Established



Biosafety Level (BSL) 2
Commercial Manufacturing Capacity Secured



Efficient Manufacturing Established

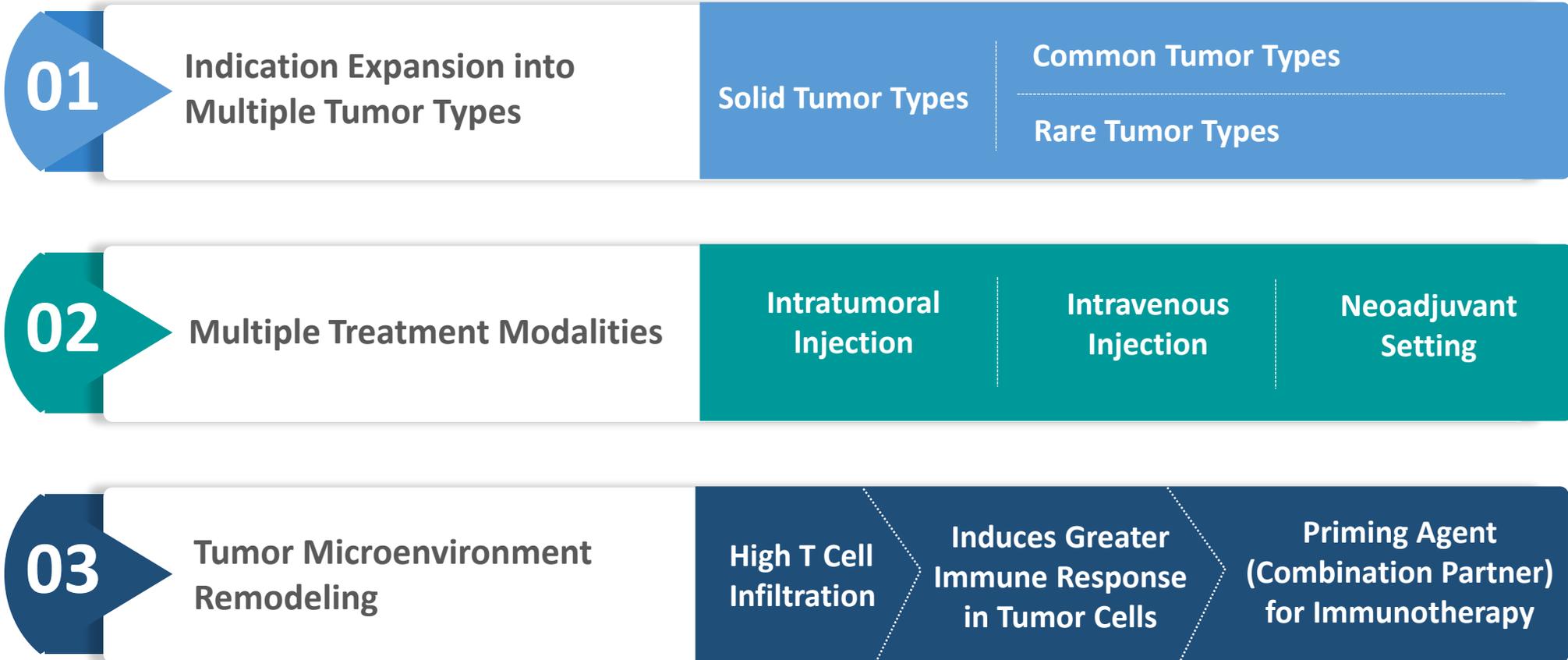
- Biosafety Level (BSL) 2 Designation (Non human pathogen)
- Internationally qualified manufacturing facility under ICH regulations
- Commercial reproducible and scalable manufacturing process secured





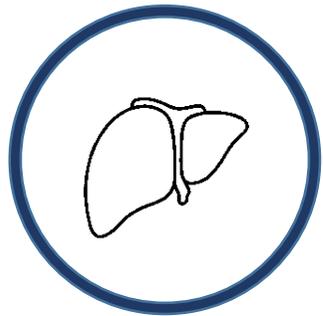
GROWTH:
Corporate Strategy, Current Clinical Trials
and 3 Year Plan

SillaJen's Corporate Strategy



Clinical Development Overview: Targeting Multiple Tumor Types

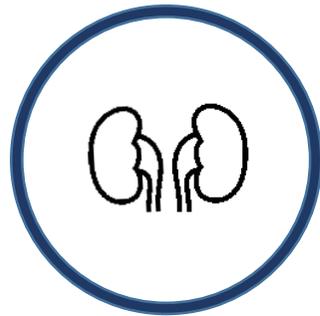
Current Target Indications



Liver

Global Phase 3 Trial

- 2015.04 Obtained SPA
- 2016.01 1st patient in
- 1st line treatment in HCC



Kidney

Global Phase 1b Trial

- 2018.06 1st patient in
- Treatment refractory RCC
- Collaboration study with REGENERON.

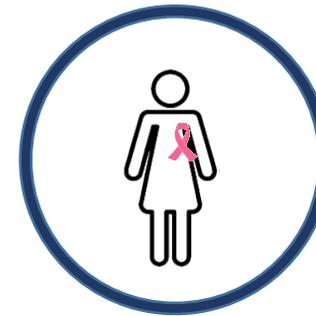


Colorectal

Phase 1 / 2 Trial (IIT)

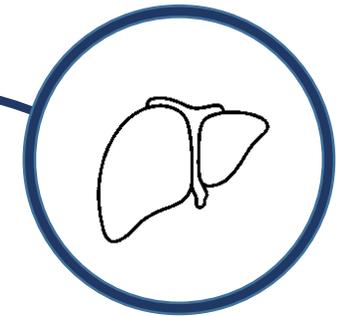
- Treatment refractory CRC
- Investigator Initiated Study at National Cancer Institute (NCI)

New High Potential Areas



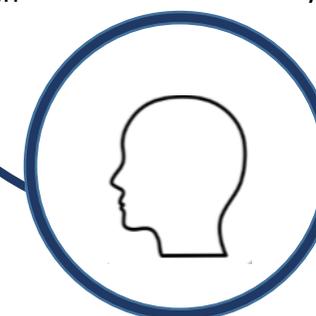
Breast

#1 Most common cancer in women



Liver Metastasis

Basket Trial of All Tumor Types with Liver Metastasis



Head & Neck

Easy-to-access tumors

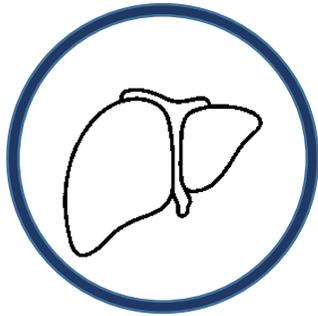
Current Clinical Trials



* SIT : Sponsor Initiated Trials

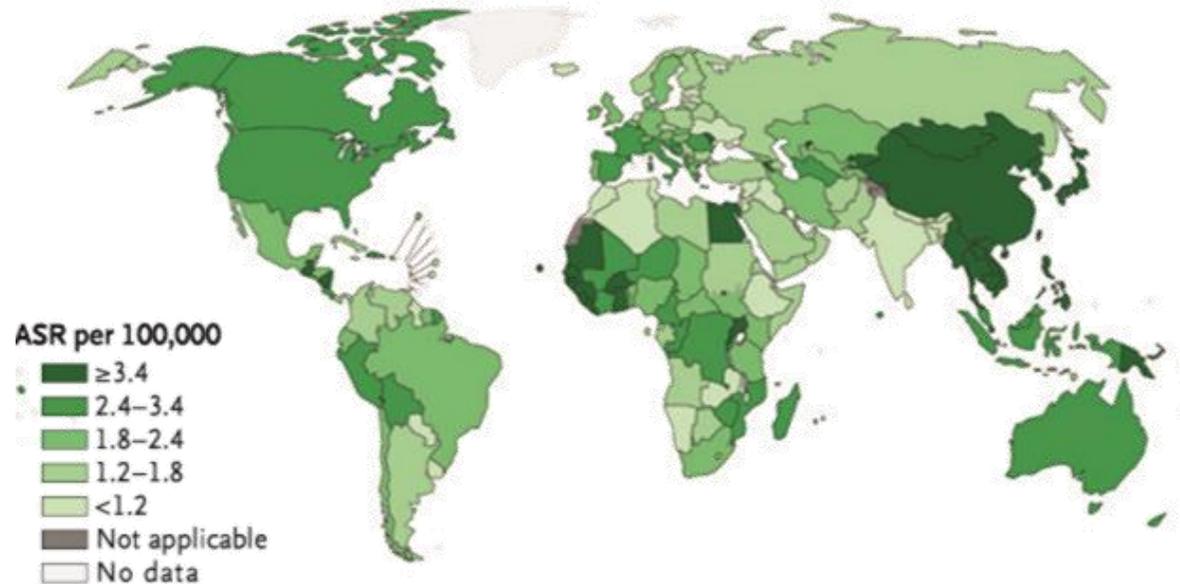
* IIT : Investigator Initiated Trials

Advanced Hepatocellular Carcinoma (HCC)



World-Wide Prevalence of Liver Cancer

Prevalence

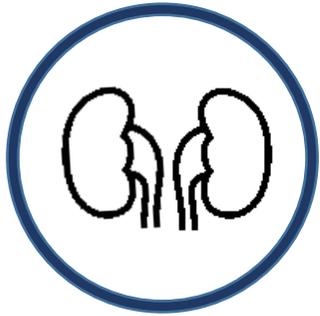


- Over 800,000 patients with Liver Cancer in 2018
- Projected to have over 1,000,000 patients in 2030
- 5 year survival rate of 18%, 2nd most Lethal Tumor
- WHO estimates: >1 million patients will die from liver cancer in 2030

International Agency for Research on Cancer, WHO.
Cancer today (<https://gco.iarc.fr/today/home>).

Villanueva, Augusto. *N Engl J Med* 2019;380:1450-62

Metastatic Renal Cell Carcinoma (RCC)



Global Phase 1b Combination Study with Pexa-Vec Administered Intravenously (IV) and Intratumorally (IT)

REGENERON

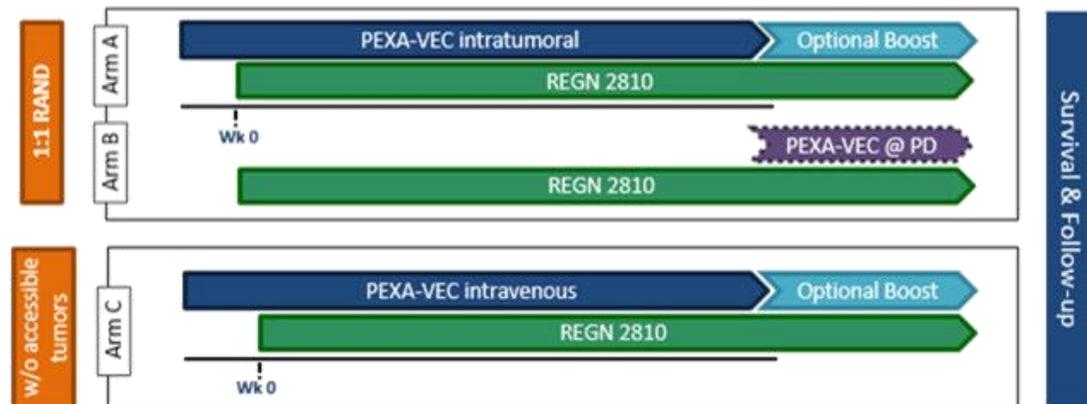
N=86

- Metastatic RCC / Clear-cell variant
- Immune checkpoint inhibitor therapy naïve patients
- Tumor accessible for biopsy and injection (Arms A and B)

- **Primary Endpoint:** Safety
- **Key Secondary Endpoints:** ORR, PFS, OS, immune correlates

Pexastimogene devacirepvec (PEXA-VEC)

- IT starting D-X
- 1×10^9 pfu (plaque-forming units) per treatment
- Optional boost starting Wk 27



LIBTAYO®

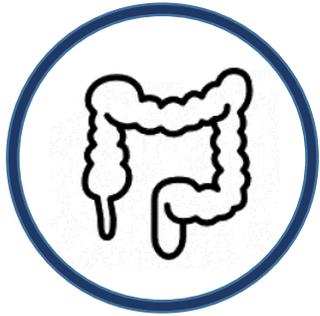
- IV q3wk
- Until progression (concurrent with PEXA-VEC following PD on Arm B)



- Programmed Death Receptor-1 (PD-1) blocking Antibody
- Approved for **Cutaneous Squamous Cell Carcinoma (CSCC)** by the FDA (2018.09)



Metastatic Colorectal Cancer (CRC)



Phase I/II Study of Pexa-Vec Oncolytic Virus in Combination with Immune Checkpoint Inhibition in Refractory Colorectal Cancer (IIT)

NIH NATIONAL CANCER INSTITUTE

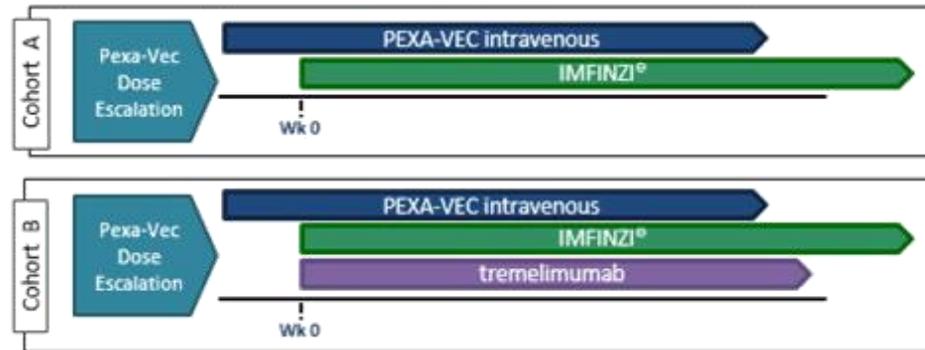
N = 35

- Metastatic CRC
- Microsatellite-stable (MSS or MSI-L) phenotype and α -PD-1 therapy refractory MSI-H patients
- ECOG 0-1

- **Primary Endpoint:** Safety
- **Key Secondary Endpoints:** ORR, PFS, OS, immune correlates

Pexastimogene devacirepvec (PEXA-VEC)

- IV starting D-X



IMFINZI® (durvalumab)

- IV
- Until progression

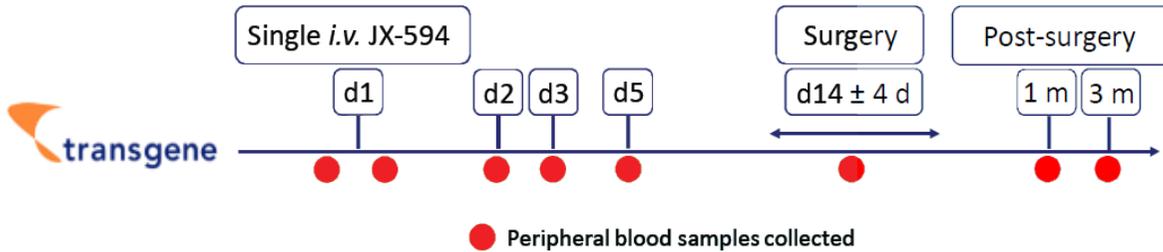
tremelimumab

- IV
- Until progression

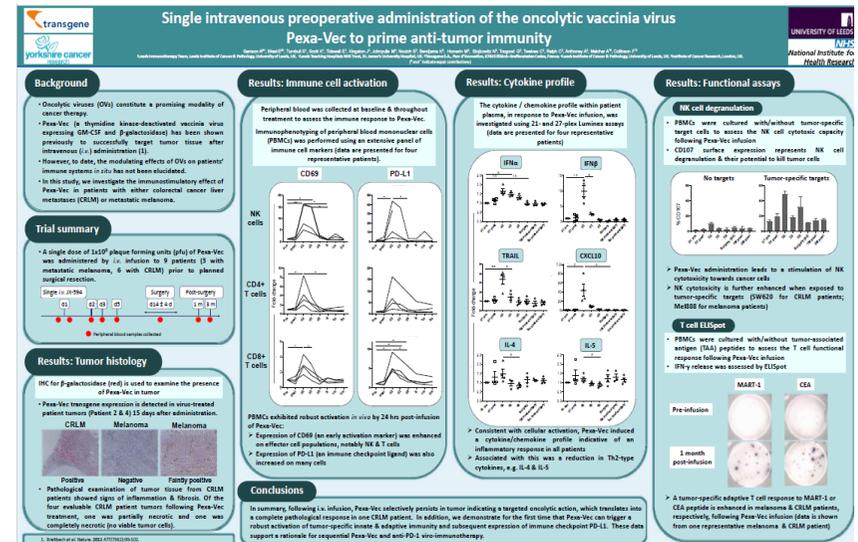
Neoadjuvant Therapy



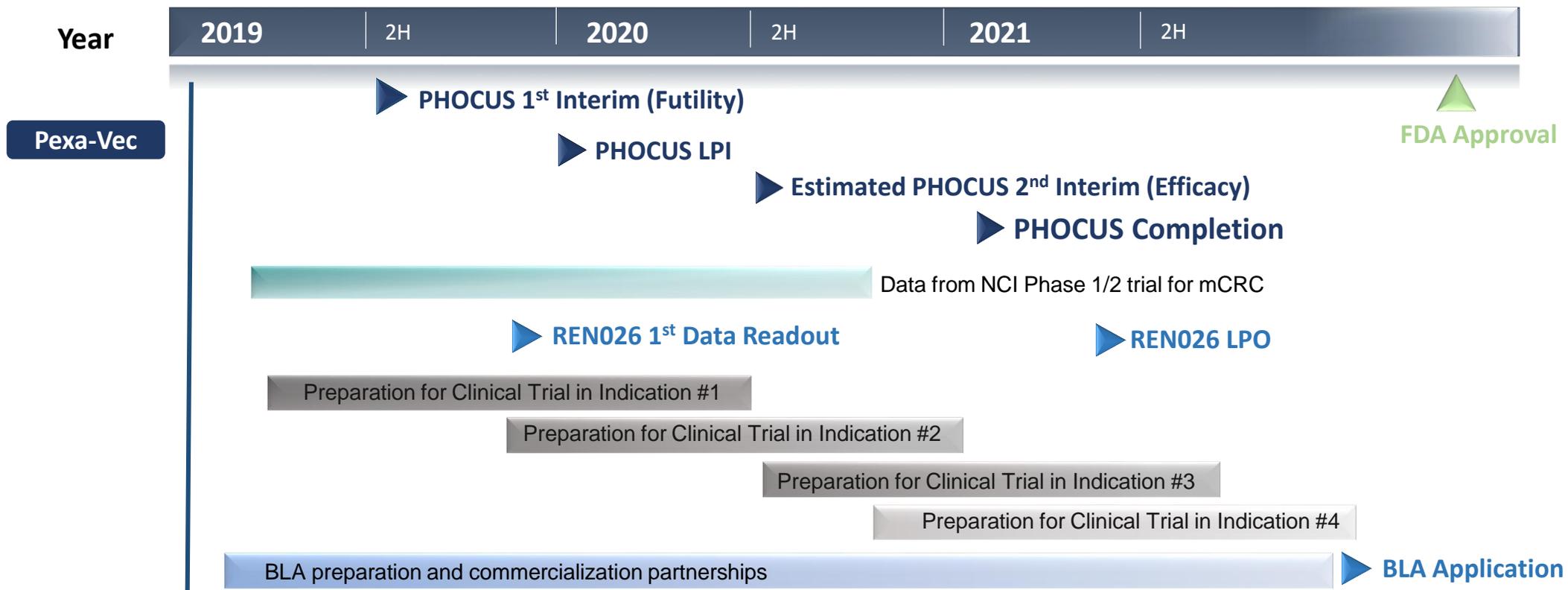
Phase I Study of Single IV Pre-Operative Administration of Pexa-Vec (IIT)



- A **single dose** of 1×10^9 pfu of Pexa-Vec administered by IV infusion to 9 patients (3 with metastatic melanoma, 6 with CRLM) prior to planned surgical resection
- Investigating the immunostimulatory effect of Pexa-Vec in patients with either colorectal cancer liver metastases (CRLM) or metastatic melanoma



Promising 3 Year-Plan



JX-970

- Publication of Preclinical Data
- Preparation of Phase 1 study of JX-970 after production is complete
- IND submission preparation and preparation for Phase 1 study in anti PD-1 treatment refractory patient

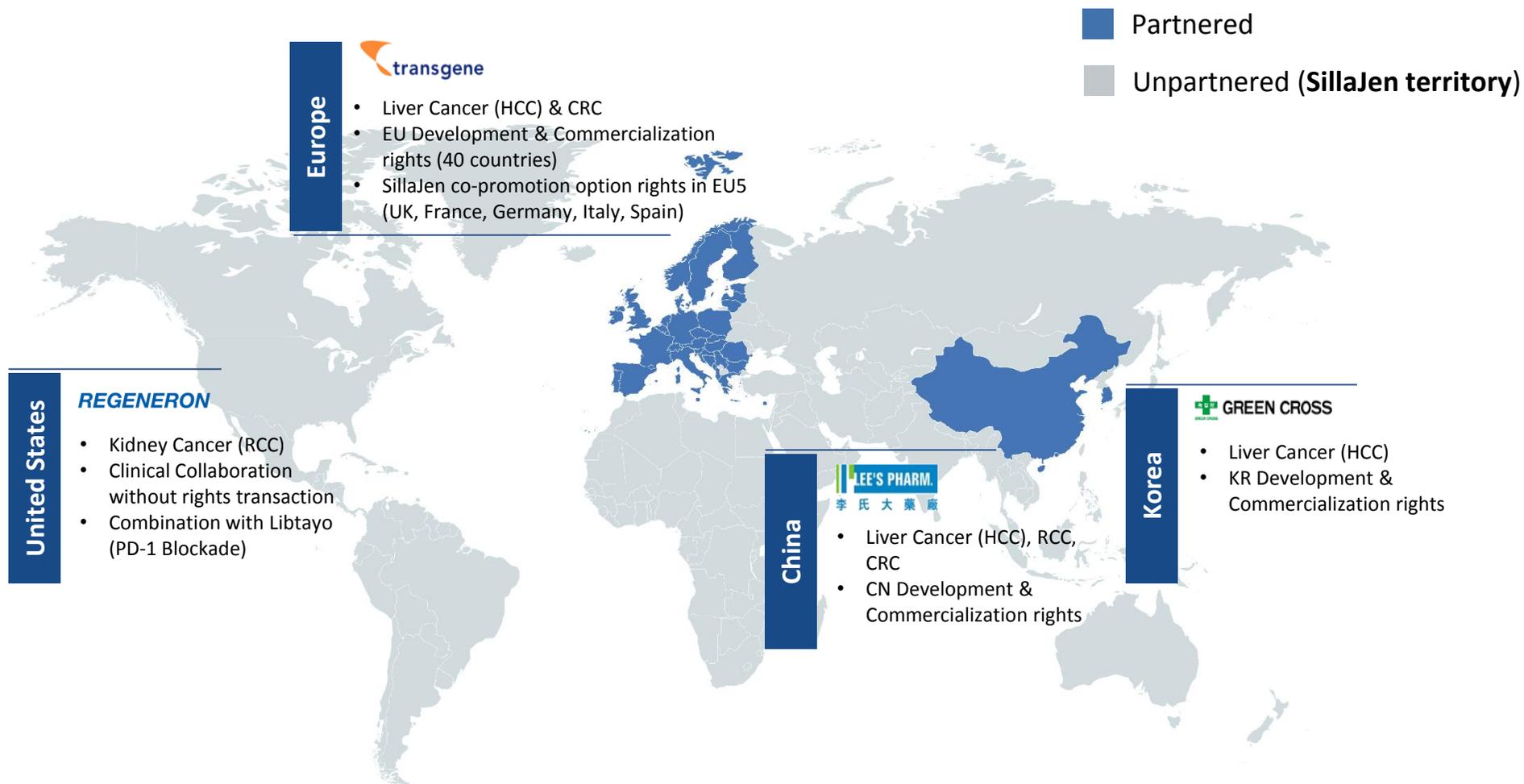
Next Generation

Ongoing in-house research and academic collaborations for next-generation candidate development



INNOVATION:
PARTNERSHIPS AND INTELLECTUAL PROPERTY

Partnership

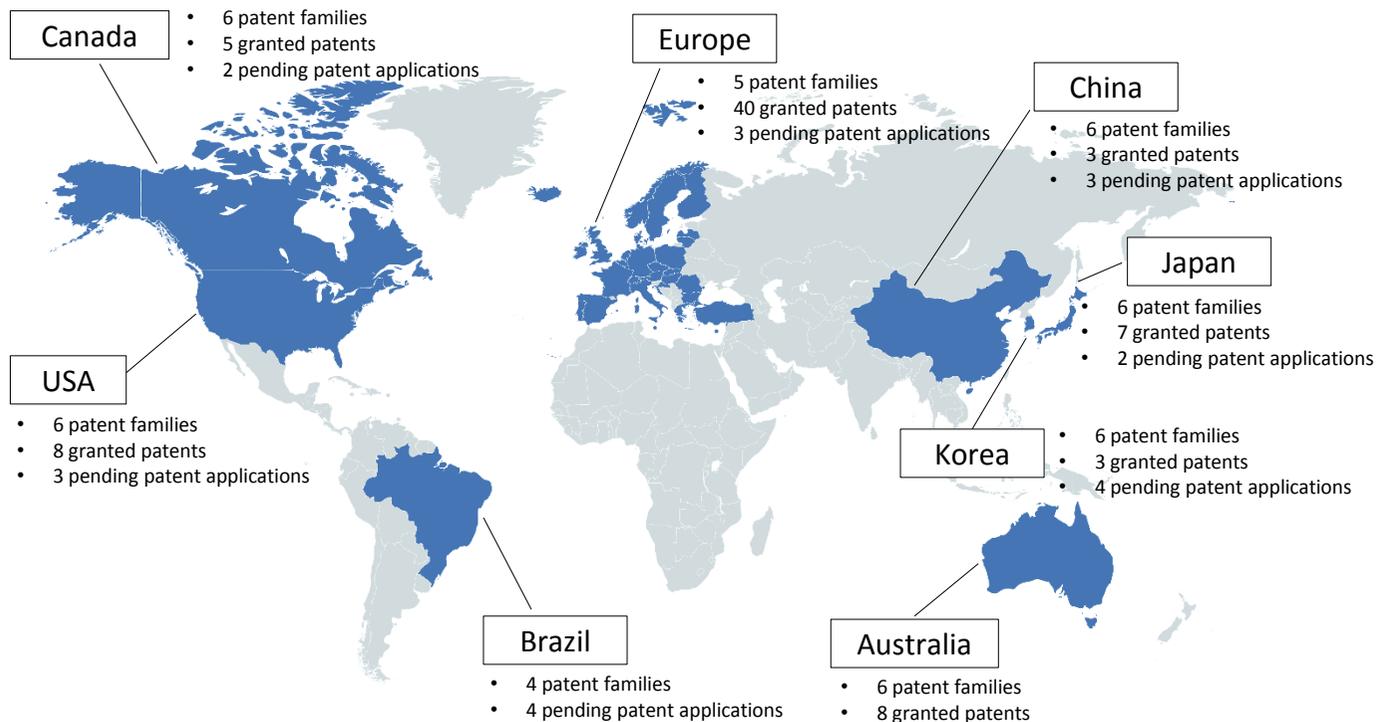
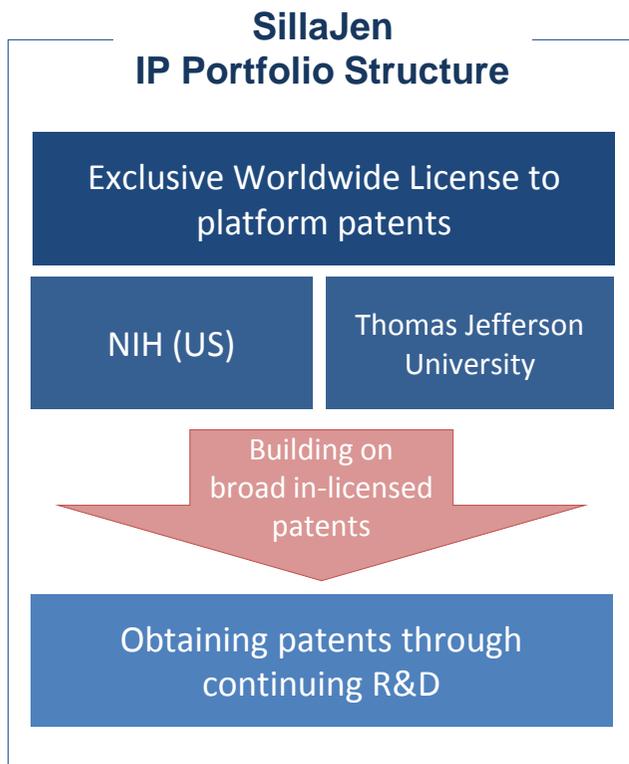


- All other assets (incl. JX-970) are unpartnered

Intellectual Property

Broad patent portfolio to protect clinically and commercially relevant claims

Freedom to operate to dominant IP position worldwide



Key patent terms expire between 2026 and 2030



www.sillajen.com

