

Programa Cooperación Farma-Biotech

Jornada II: **Oncología**

VCN-01:

A highly selective and efficient virus specifically designed to treat refractory tumors



Barcelona, 13 de abril de 2011

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Content

1. About VCN Biosciences

2. Our product: VCN-01

- a) VCN-01 Innovative mechanisms of action
- b) IPR protection
- c) Differential features facing the market
- d) Current status of development:
 - Preclinical
 - Manufacturing
 - Clinical Program

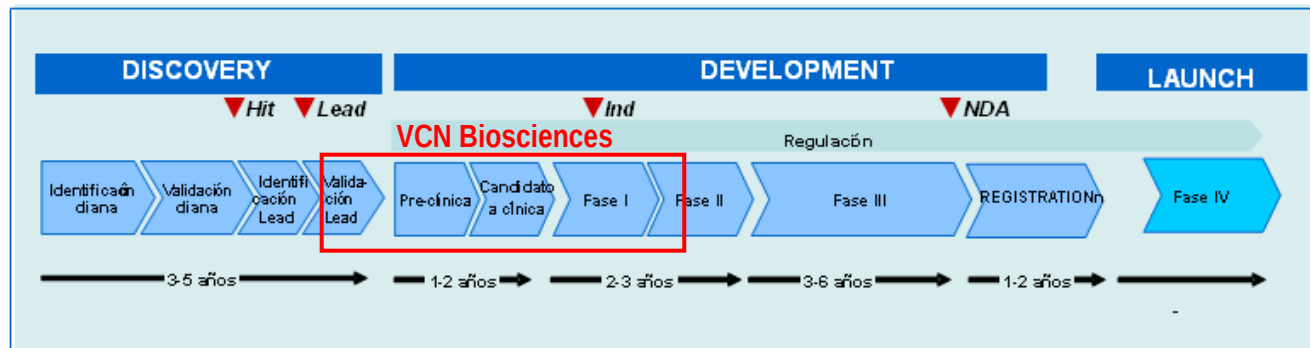
3. Our expectatives cooperation

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WHAT'S VCN BIOSCIENCES

VCN Biosciences was created in 2009 as an spin-off from Virotherapy group at l'ICO / IDIBELL with the aim of developing new agents for the treatment of cancer using the oncolytic adenovirus technologic platform.



VCN's **mission** implies the valuation of new candidate viruses from its early identification and preclinical studies to the validation of its antitumoral efficacy in human patients during initial clinical trials (Phase I and II)

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VCN Biosciences TEAM

Current shareholders distribution: 100% private capital

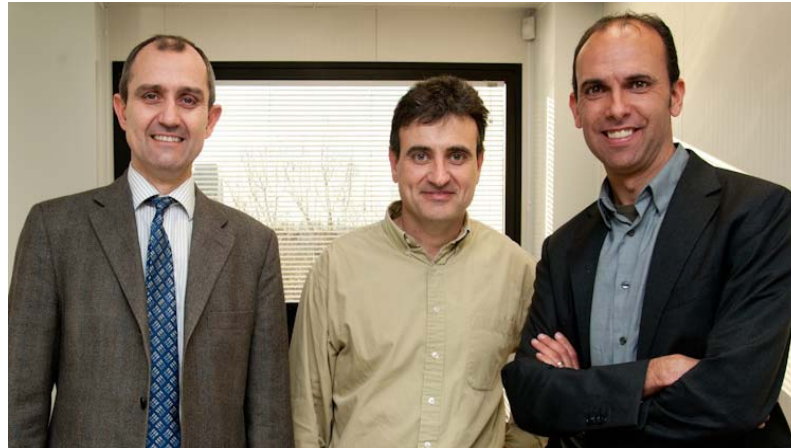
Strategic Consultancy

BIOEMPREN SL
(Mr. Jaume Amat)

BIOEMPREN
promovem idees, impulsem projectes



ENTREPRENEUR TEAM



**Dr. Gabriel
Capellà**

President

**Dr. Ramon
Alemany**

**Chief Scientific
Officer**

**Dr. Manel
Cascalló**

**Chief Executive
Officer**



Scientific Advisory Board

Dr. Jose Costa (Yale Univ., USA)
Dr. Nick Lemoine (QMCR, UK)
Dr. Ramon Salazar (ICO, Spain)

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VCN Biosciences TEAM

Differential Scientific Value:

- **Internationally recognized** scientifics in cancer virotherapy, molecular oncology, pancreatic cancer and pre-clinical models
- inventors of more than **5 patents** in adenovirus field
- **consultants** in different biotech companies in the field and relevant regulatory committees (EMA)
- previous **expertise in moving an oncolytic adenovirus to the clinic** (ICOVIR-5 for melanoma treatment in a forthcoming Phase I clinical trial)

& Solid Entrepreneur Expertise:

- Bioemprenedor XXI 2010 Award winner
- SME (Micro, small or medium-sized Enterprise) qualification by EMA
- Strong business formation (IESE) and **strategic assessment by Bioemprèn** (Jaume Amat),

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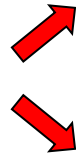
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VCN BIOSCIENCES PIPELINE

Pipeline:

- T1 technology

(WO 2008 / 110579 A2)



- sub-licensed to ORCA Therapeutics (Holland)

- participant in EUREKA AMBAssADOR project (Σ!4582)

licensed-out of VCN

- Hyaluronidase technology

(WO 2010 / 128182 A1)

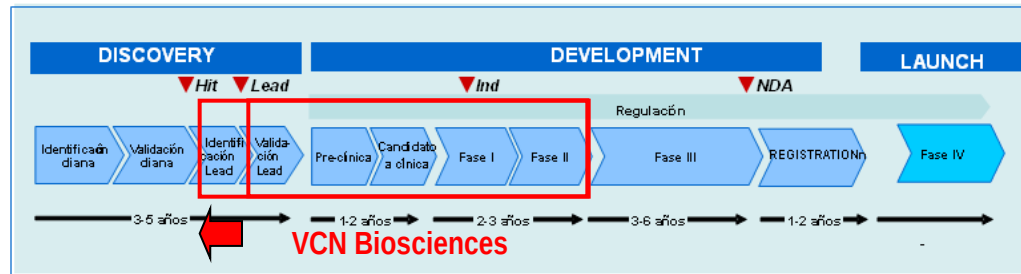


Clinical candidate VCN-01
for the treatment of refractory tumors
(i.e. pancreatic tumors)

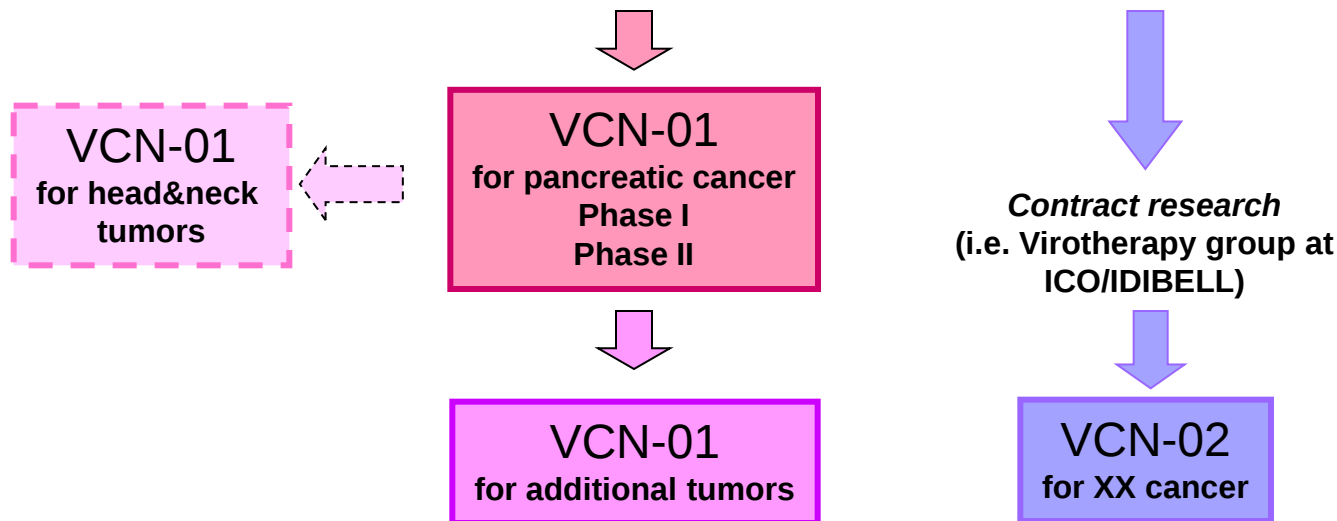
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VCN BUSINESS MODELS



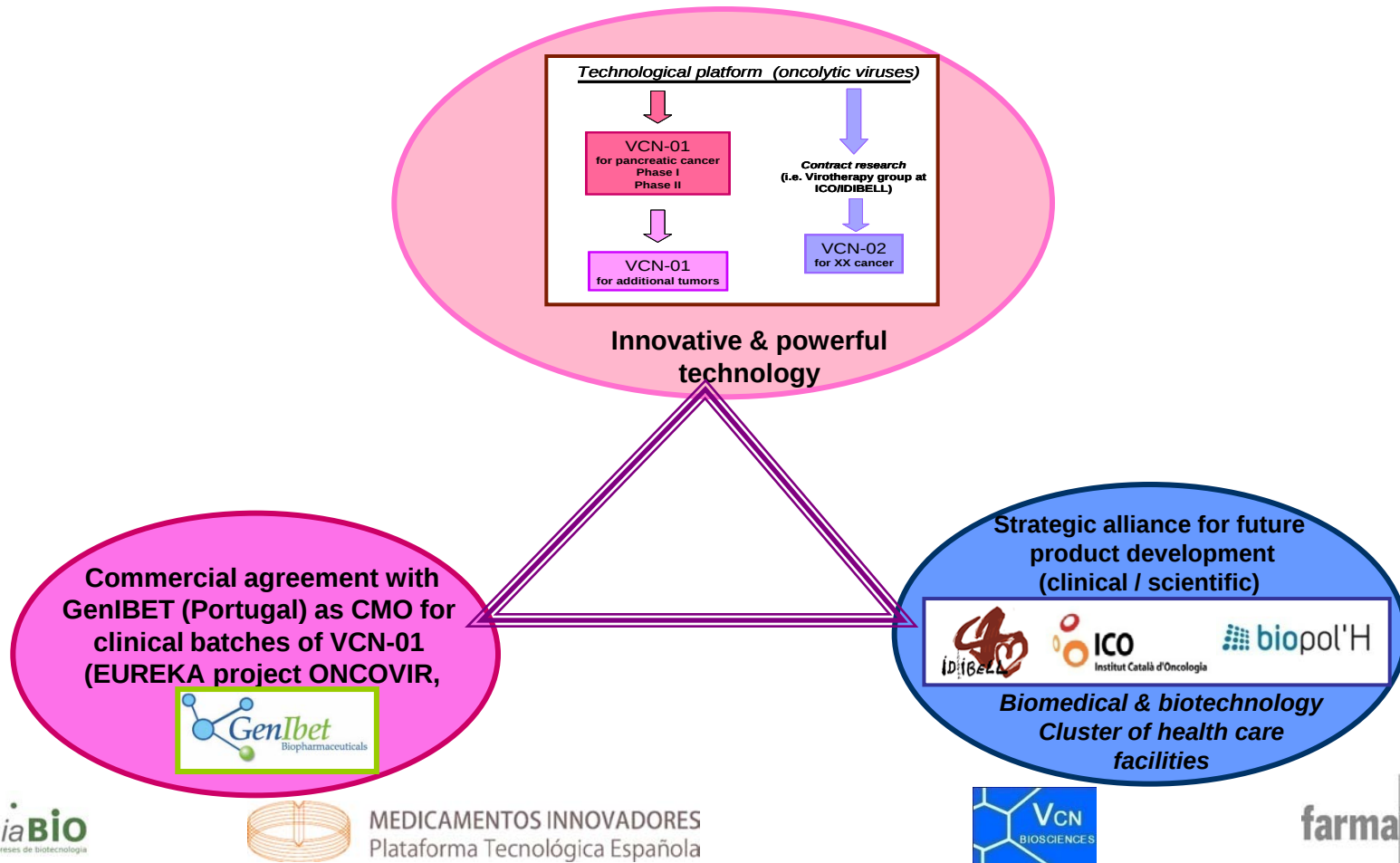
Technological platform (oncolytic viruses)



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VCN STRATEGIC ALLIANCES

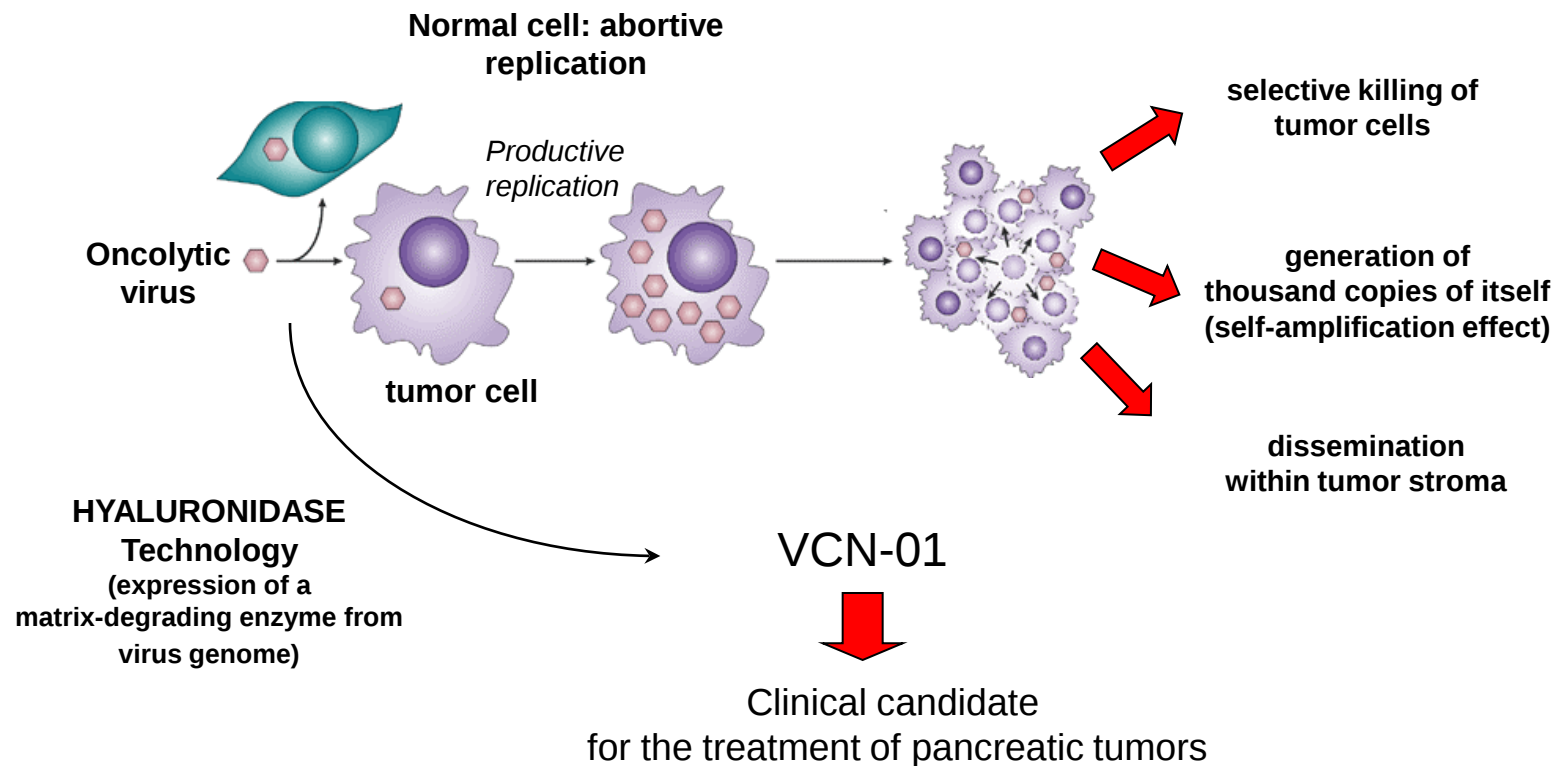


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VCN-01 TECHNOLOGY

Oncolytic adenoviruses = viruses which replication is restricted to tumor cells

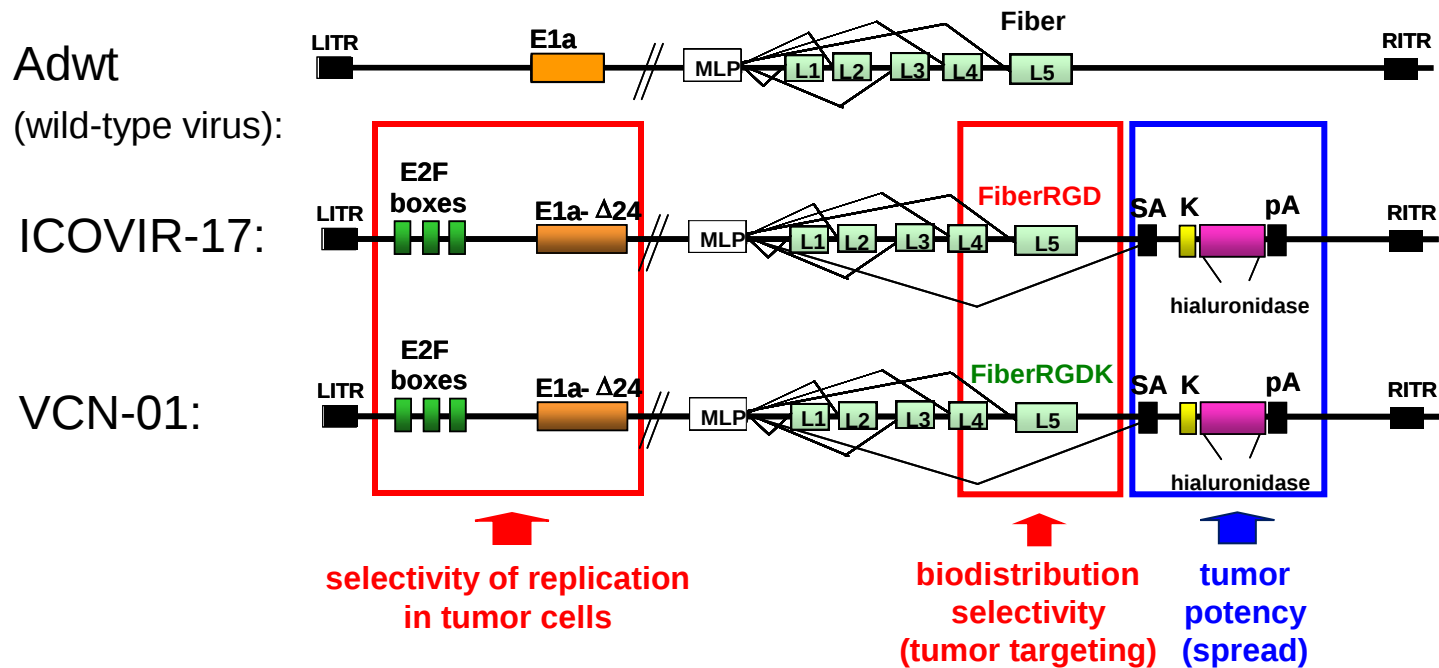


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VCN-01 TECHNOLOGY

VCN-01: oncolytic adenovirus expressing HIALURONIDASE



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IPR PROTECTION on VCN-01 TECHNOLOGY

*Initial Submission to Spanish Office
(Priority date): May 6th, 2009
(IDIBELL (ICO))*



*PCT protocol
(May 2010)*

PCT / ES2010 / 000196 → WO 2010 / 128182 A1



*VCN proprietary technology
(September 2010)*

**FREEDOM TO
OPERATE FOR VCN-01
HAS BEEN
STABLISHED AT
EXPECTED PRODUCT
APPROVAL (2019/2020)**

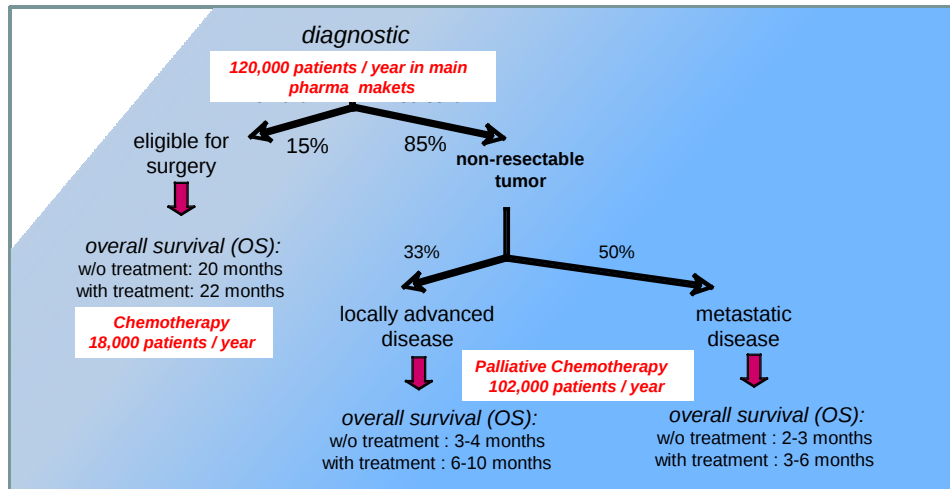
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VCN-01 and ITS MARKET

Pancreatic cancer

- diagnosed at late stages
- fast and systemic clinical course
- resistant to chemotherapy
- highly desmoplastic



- it represents the **4th most common cause of cancer-related death** in developed countries although ranks only at 13th position by incidence (1.3 in 10,000 person in EU)
- **incidence = death cases** associated to the disease (by year)
- treatment costs are estimated in **11,000-15,000 € / patient & year (1,320-1,800 M€)**
- up to **80% of treatments become palliative**

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VCN-01 and ITS MARKET

Pancreatic cancer

- diagnosed at late stages
- fast and sytemic clinical course
- resistant to chemotherapy
- highly desmoplastic

Differential characteristics of VCN-01

Classical chemotherapy

low selectivity:
systemic side effects

effective dose diminishes
with time

low penetrance due to high
interstitial pressure

Pancreatic tumor

VCN-01

Selective killing of
tumor cells

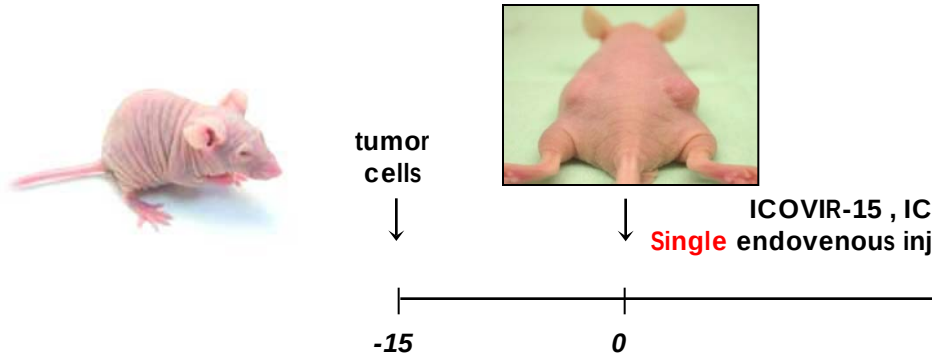
generation of thousand
copies of itself:
selfamplification of the effect

dissemination within tumor
stroma

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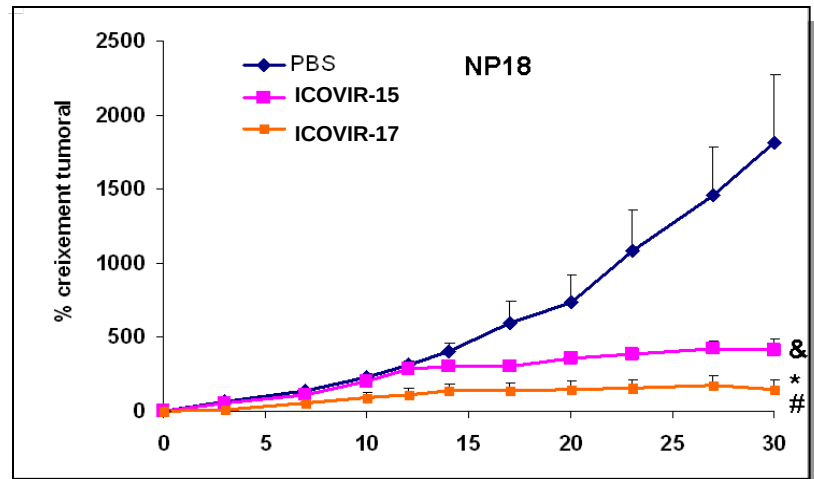
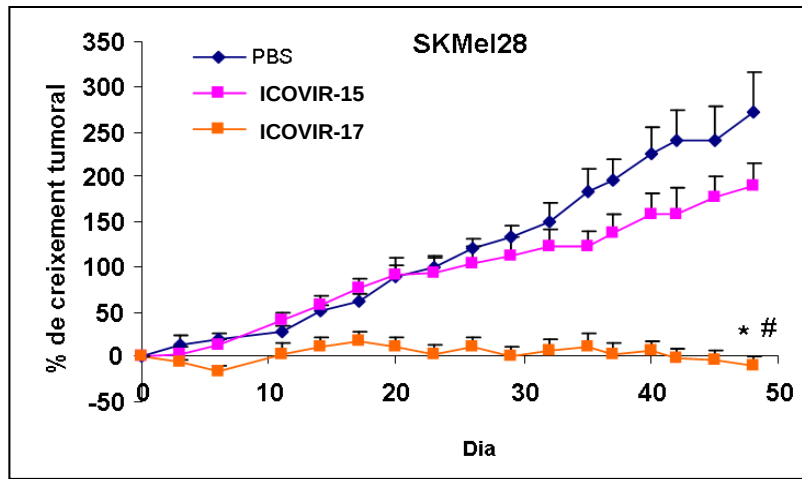
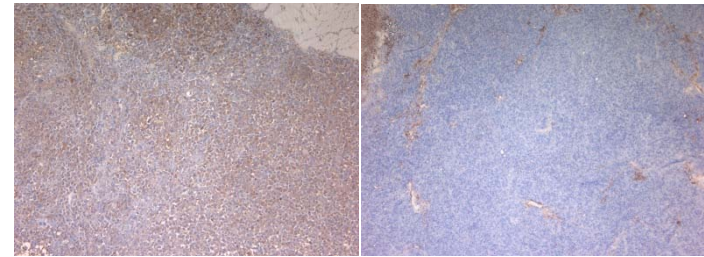
VCN-01 TECHNOLOGY



Evaluation of intratumoral HA content by staining with biotinylated HABP

SKMeI28

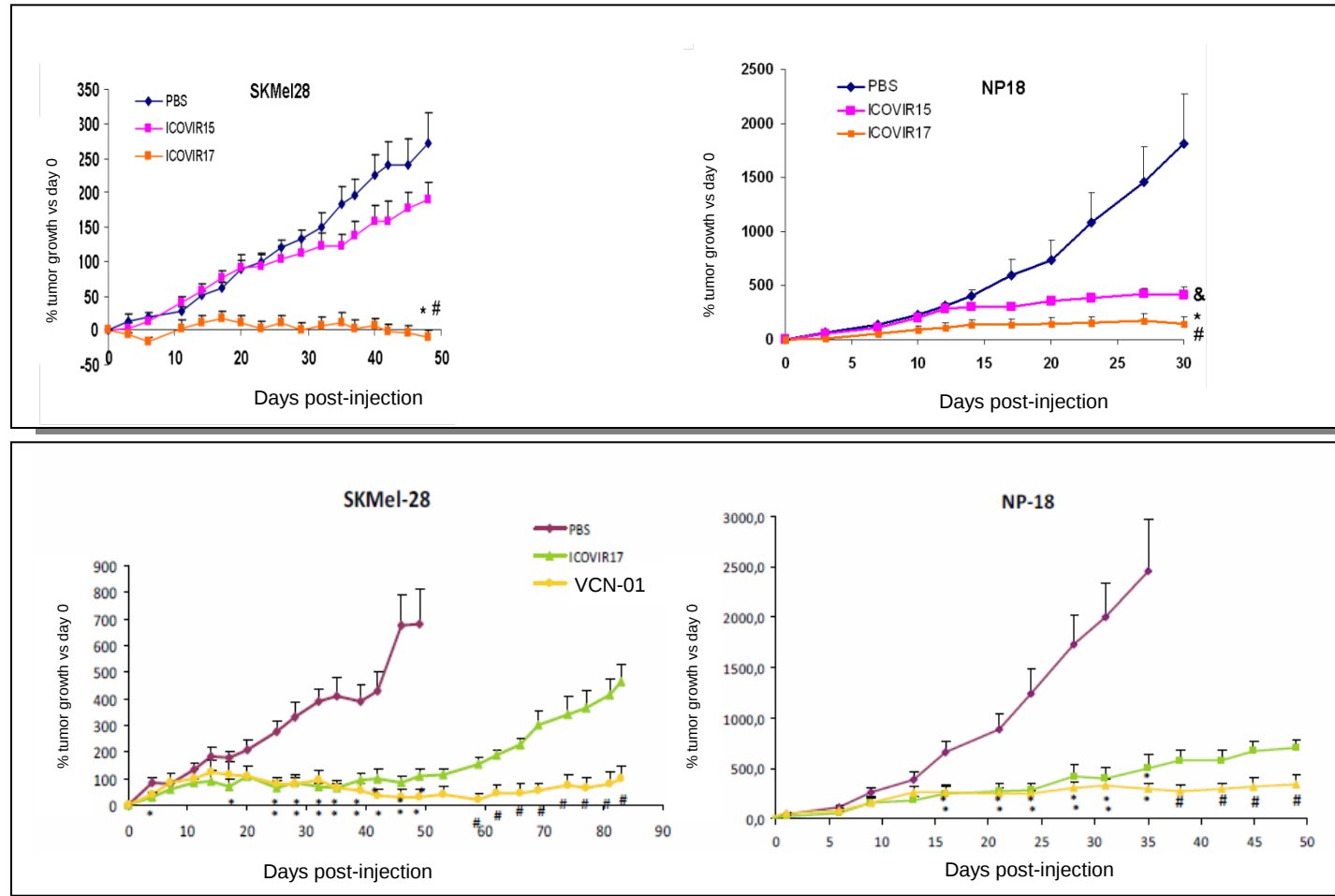
NP18



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VCN-01 TECHNOLOGY

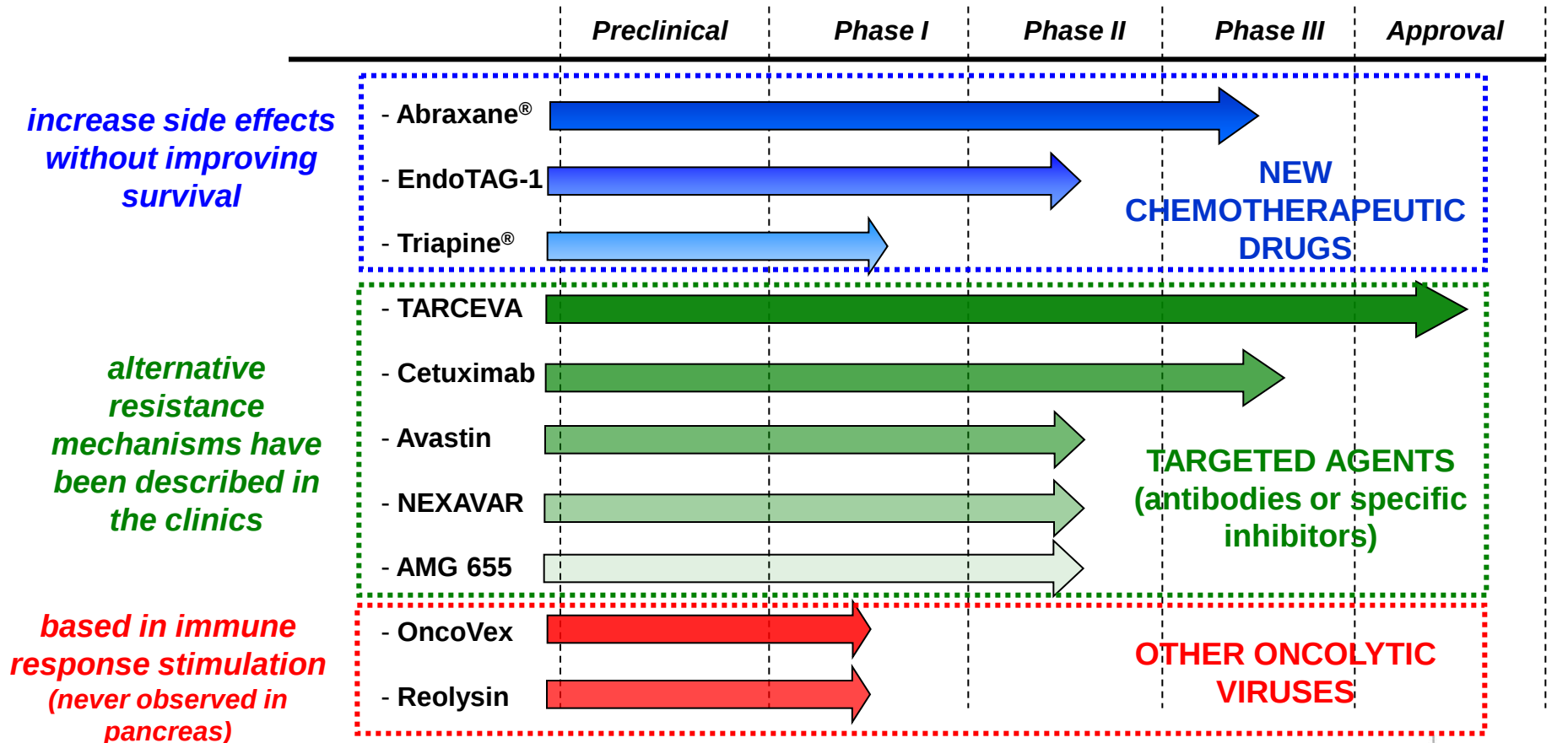


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VCN-01 COMPETENCE ANALYSIS

Experimental treatments for pancreatic cancer

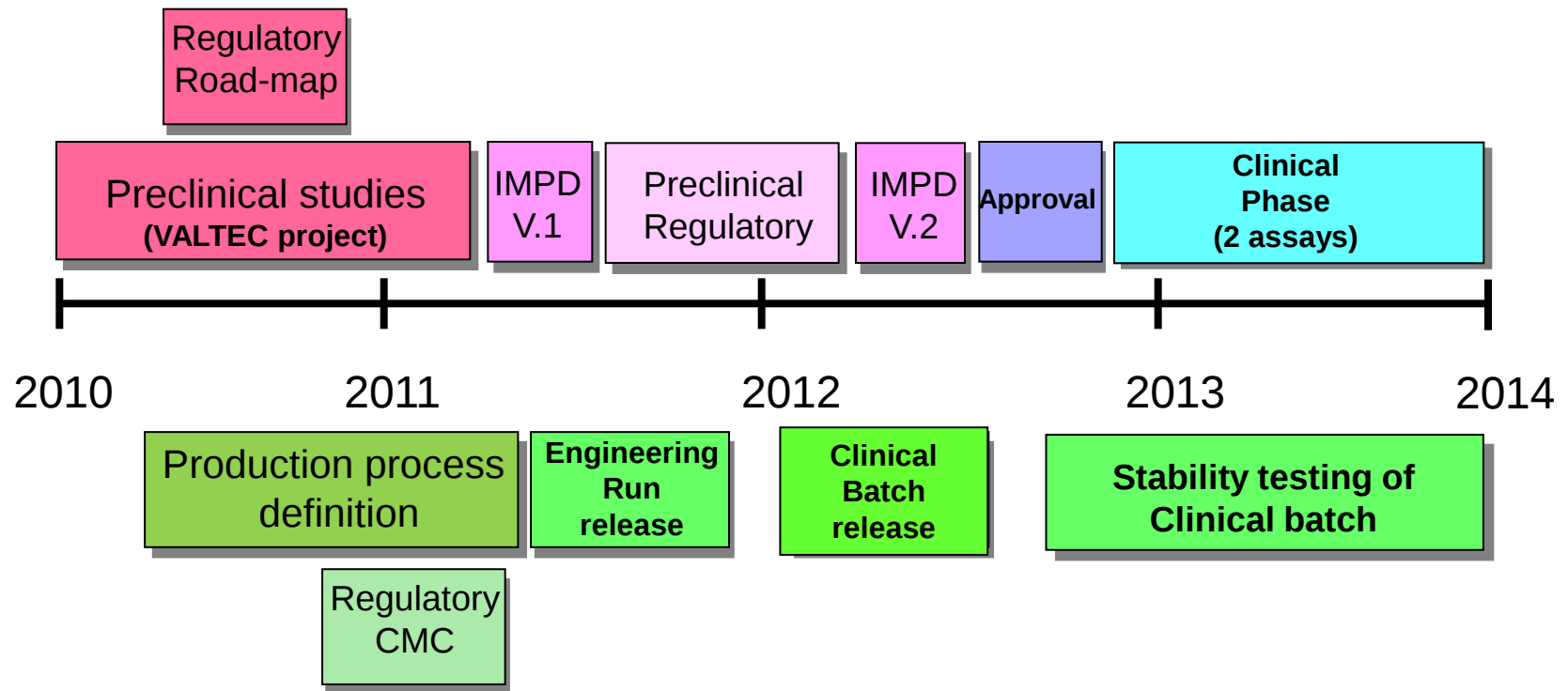


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VCN-01 DEVELOPMENT SCHEDULE (2010-2014)

PRE-CLINICAL + REGULATORY ASSESSMENT



MANUFACTURING

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VCN-01 PoC (Proof of concept) STUDIES

In vitro cytotoxicity in tumoral cell lines

IC₅₀ value (TU/cell)
(in parenthesis fold-increase vs. VCN-01)

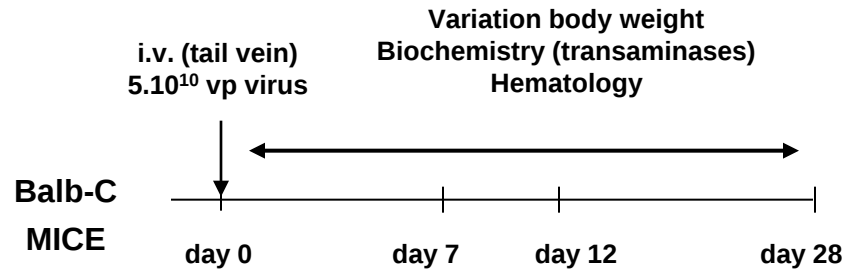
IC ₅₀ (TU/mL)	Adwt-RGDK	ICOVIR15-RGDK	ICOVIR17	ICOVIR17-RGDK
A549	0,0102 (26,67)	0,1142 (2,38)	0,0309 (8,80)	0,2720
SKMel-28	1,6362 (0,33)	0,3572 (1,50)	0,2548 (2,10)	0,5359
NP-18	0,1336 (1,15)	0,1207 (1,27)	0,1480 (1,04)	0,1535
NP-9	0,4345 (5,62)	2,9449 (0,83)	1,3378 (1,82)	2,4406
NP-29	1,7406 (2,05)	3,3143 (1,08)	1,9034 (3,28)	3,5739
NP-31	1,8800 (1,48)	13,101 (0,62)	1,0897 (1,65)	10,148
Panc-1	0,6647 (0,98)	1,0992 (0,60)	0,0606 (10,81)	0,6549
BxPC-3	0,3172 (4,49)	1,3113 (1,09)	1,6117 (0,88)	1,4253
HP-1	0,9539 (0,74)	1,0296 (0,68)	1,2764 (0,55)	0,7020
FaDu	1,0551 (4,05)	4,2926 (0,99)	1,9896 (2,15)	4,2767
SCC-25	0,6626 (43,92)	27,227 (1,07)	35,436 (0,82)	29,103

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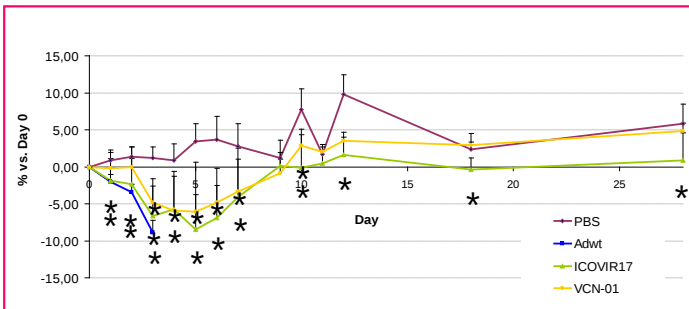
TOXICOLOGICAL PROFILE of VCN-01

Toxicological profile
after single systemic
administration in
Immunocompetent mice

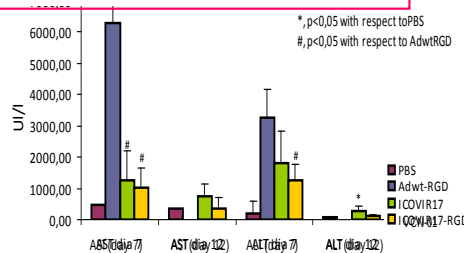


Tested viruses:

- Adwt
- ICOVIR-17
- VCN-01

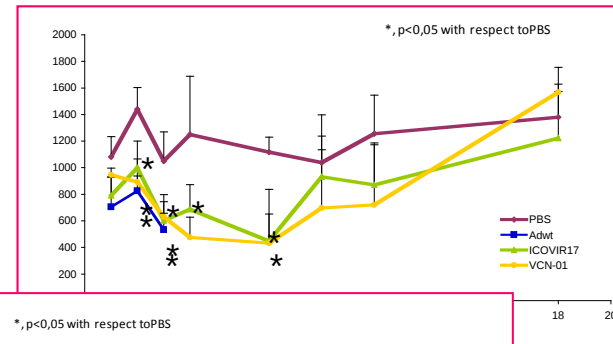


Body weight variation

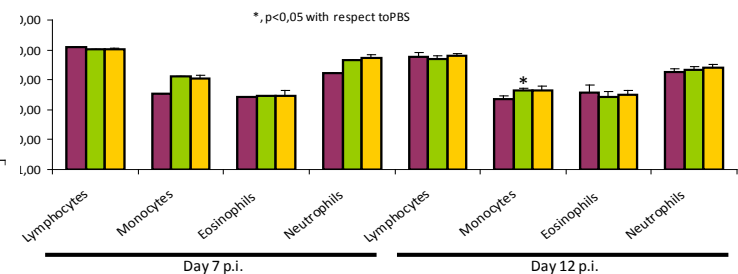


Transaminases

Platelets



White serie

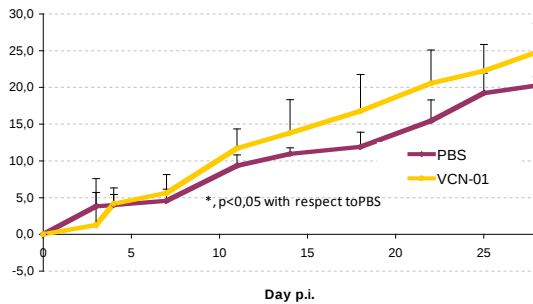
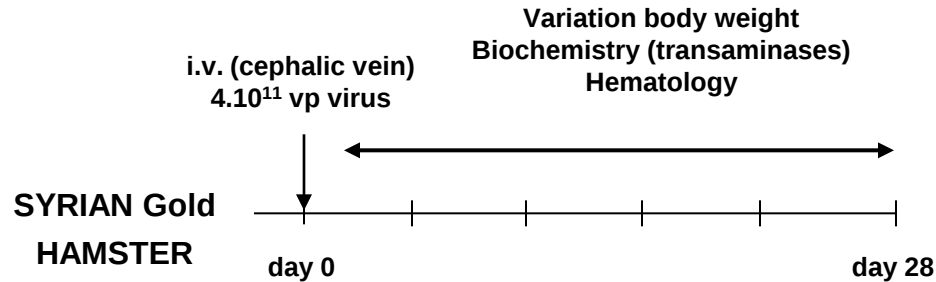


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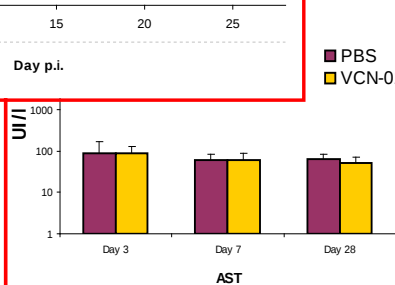
TOXICOLOGICAL PROFILE of VCN-01

Toxicological profile
after single systemic
administration in
Immunocompetent hamster

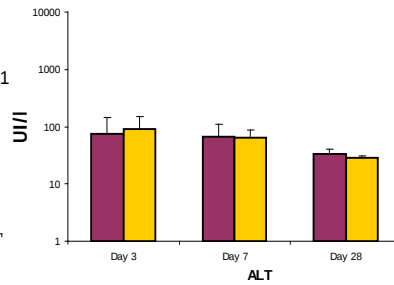


Body weight
variation

Transaminases

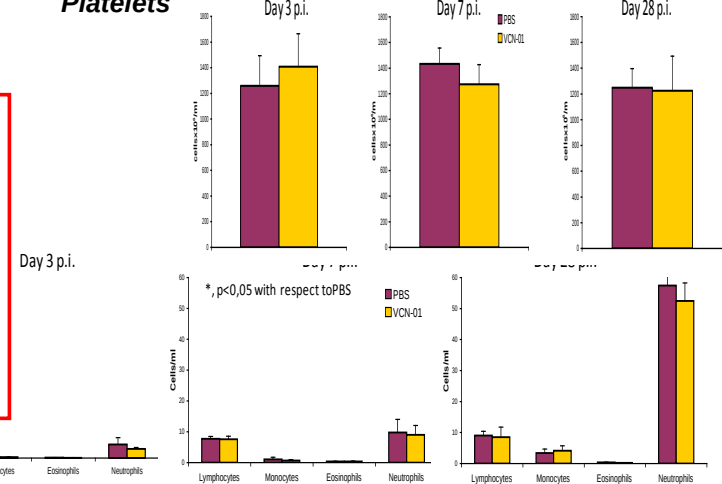


Transaminases



White serie

Platelets



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VCN-01 as a PRODUCT

VCN-01 as a pharmaceutical product

- pharmaceutical form: sterile solution for injection
- clinical batch production (under cGMP quality)



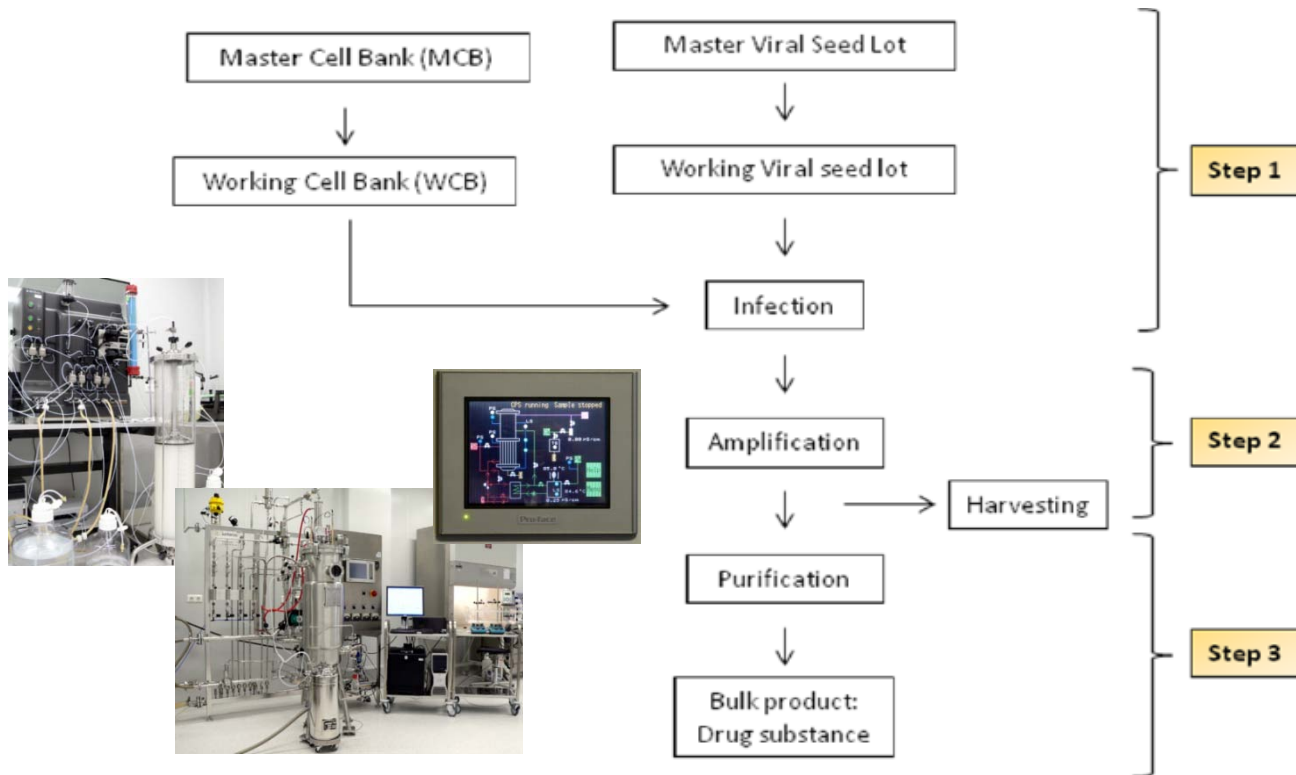
Commercial agreement with GenIBET (Portugal) as CMO
for the clinical batch of VCN-01
(EUREKA project ONCOVIR, Σ!4947)



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PRODUCTION PROCESS for VCN-01 clinical batch



The manufacturing process can be divided into the following three main steps:

Step 1: Culture of cells and infection of the virus

Step 2: Amplification and harvesting

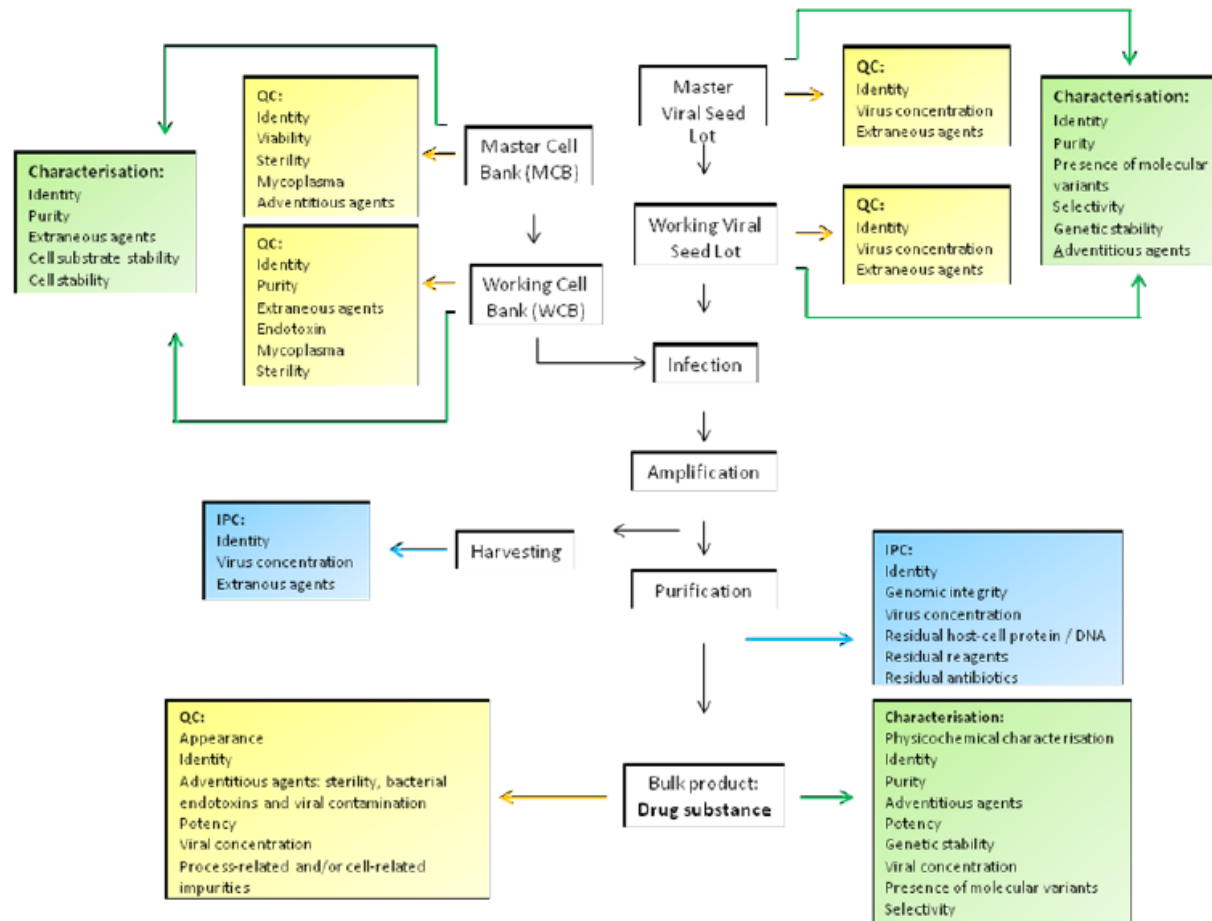
Step 3: Purification

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PRODUCTION PROCESS for VCN-01 clinical batch

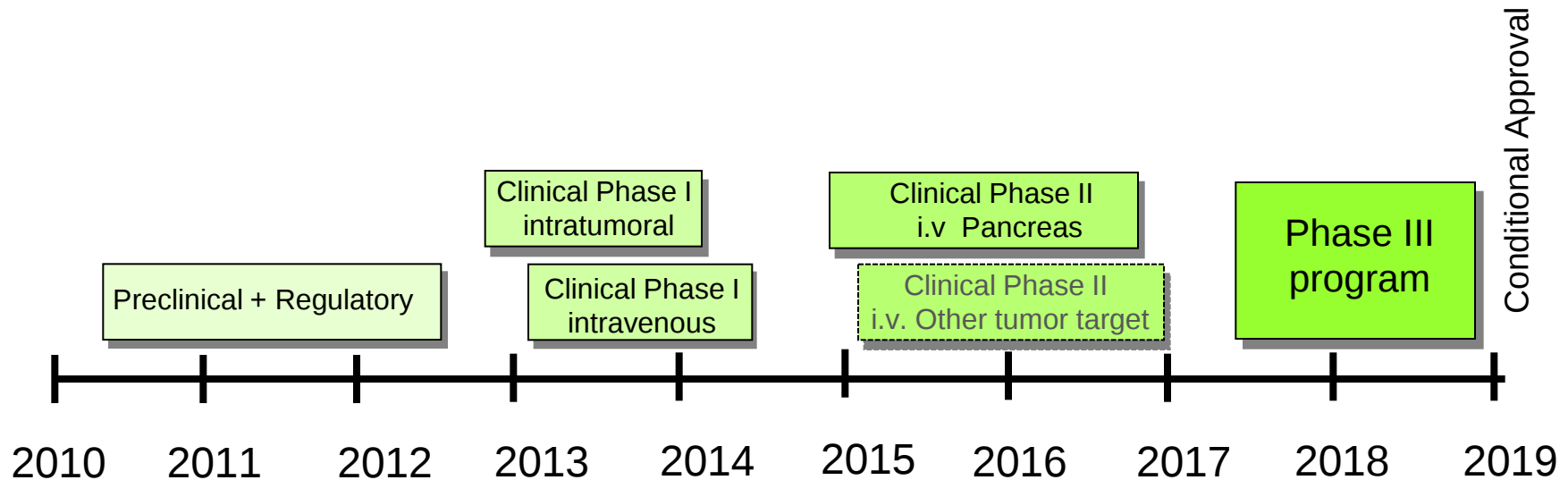
Quality controls & characterization: manufacturing



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CLINICAL DEVELOPMENT of VCN-01



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CLINICAL DEVELOPMENT of VCN-01

PHASE I for VCN-01

Preliminary planning for phase I trials

Intratumoural administration

Patients with advanced solid tumours (refractory to Cx) amenable for direct injection and clinical measurement (HN, pancreas, melanoma, RCC, lung, CCR, breast...)

Expanded cohort at the highest dose level enriched with head and neck and pancreas.

Single dose+ follow-up of 4 months .

Strategic aim: to obtain evidence of biological activity

Intravenous administration

Patients with advanced solid tumours (melanoma, RCC, lung, CCR, breast...).

Expanded cohort at the highest dose enriched with pancreatic cancer patients.

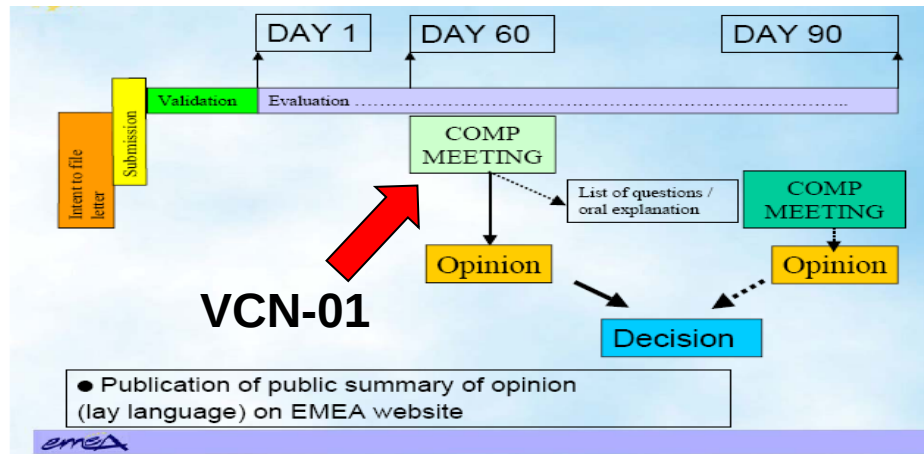
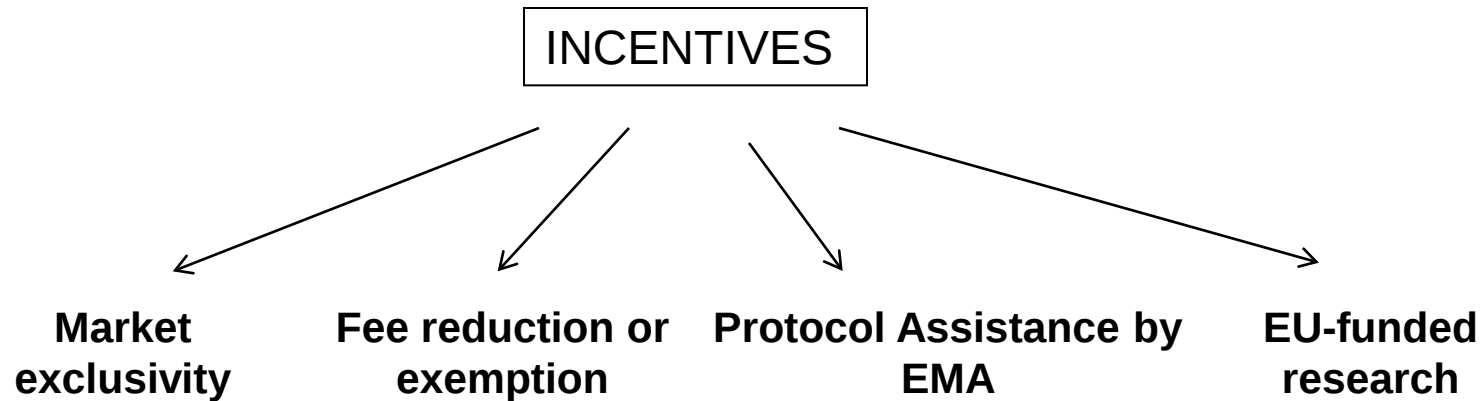
Single dose + follow-up of 4 months.

Strategic aim: starting study for clinical program

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ORPHAN DRUG DESIGNATION for VCN-01 in PANCREATIC CANCER



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CONTACT INFORMATION

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