



PCI BIOTECH

Unlocking the potential of innovative medicines

BIOEquity 2016

Copenhagen, May 11, 2016

Per Walday, CEO



PCI BIOTECH

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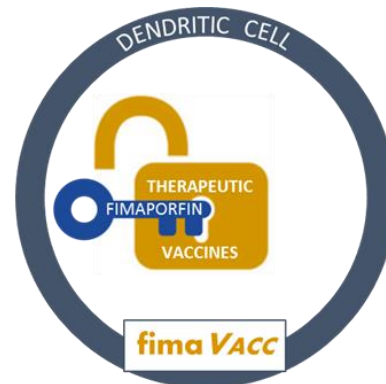
PCI BIOTECH AT A GLANCE

▶ Unlocking the potential of innovative medicines

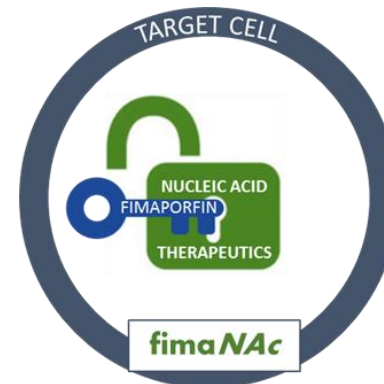
- ▶ A listed (PCIB:NO) cancer-focused biotech company
- ▶ Photochemical internalisation (“PCI”) technology, originating from the Norwegian Radium Hospital
- ▶ Clinical program
 - fimaCHEM** – Phase I/II with fimaporfin (Amphinex®) for the orphan indication inoperable bile duct cancer
- ▶ Pre-clinical programs
 - fimaVACC** – Vaccination technology that provides strongly enhanced T-cell responses, moving towards clinical validation
 - fimaNAc** – Efficient intracellular delivery of nucleic acid therapeutics, with two active research collaborations



Enabling approved drugs to fulfil unmet local treatment need



Enhancing cellular immune responses important for therapeutic effect



Providing a delivery solution for nucleic acid therapeutics

PHOTOCHEMICAL INTERNALISATION

► Triggered endosomal release through illumination

STEP 1:

- Fimaporfin (S) and the active molecule (D) are injected into the body and reaches the target cells



STEP 2:

- Fimaporfin (S) and the active molecule (D) are taken up by the cell, but D is unable to reach the target (T), as it is encapsulated in an endosome
- S is washed away from the cell membrane, but trapped in endosomes



STEP 3:

- Light activates fimaporfin (S) in the membrane of the endosome
- The membrane integrity is affected and the active molecule released



STEP 4:

- The active molecule (D) can now bind to its target (T) and initiate the therapeutic response



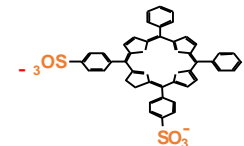
The active molecule

- Anticancer agent, e.g. bleomycin, gemcitabine
- Oligonucleotide, e.g. siRNA
- Protein, e.g. antibody-drug conjugate
- Peptide: e.g. antigen



The PCI component

- Light sensitive component
- Fimaporfin - Amphinex®



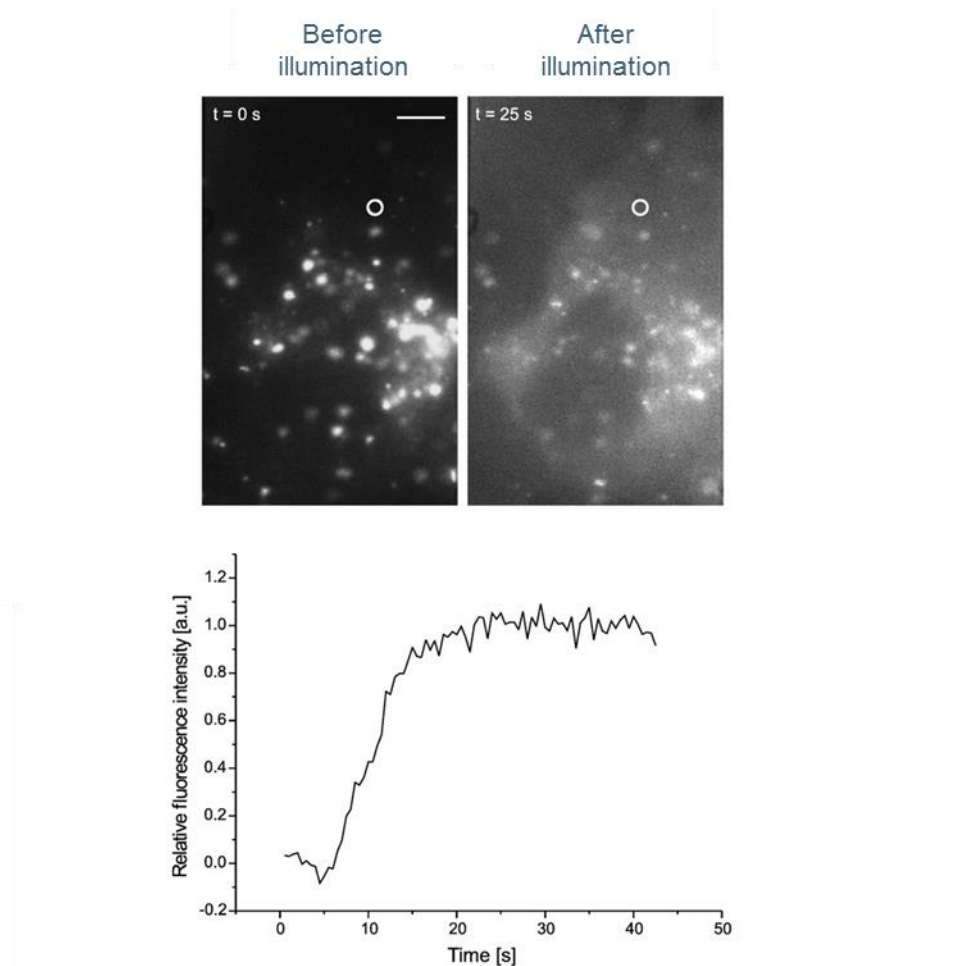
The target

- Target for the active molecule
- E.g. DNA, mRNA, enzyme, microtubuli

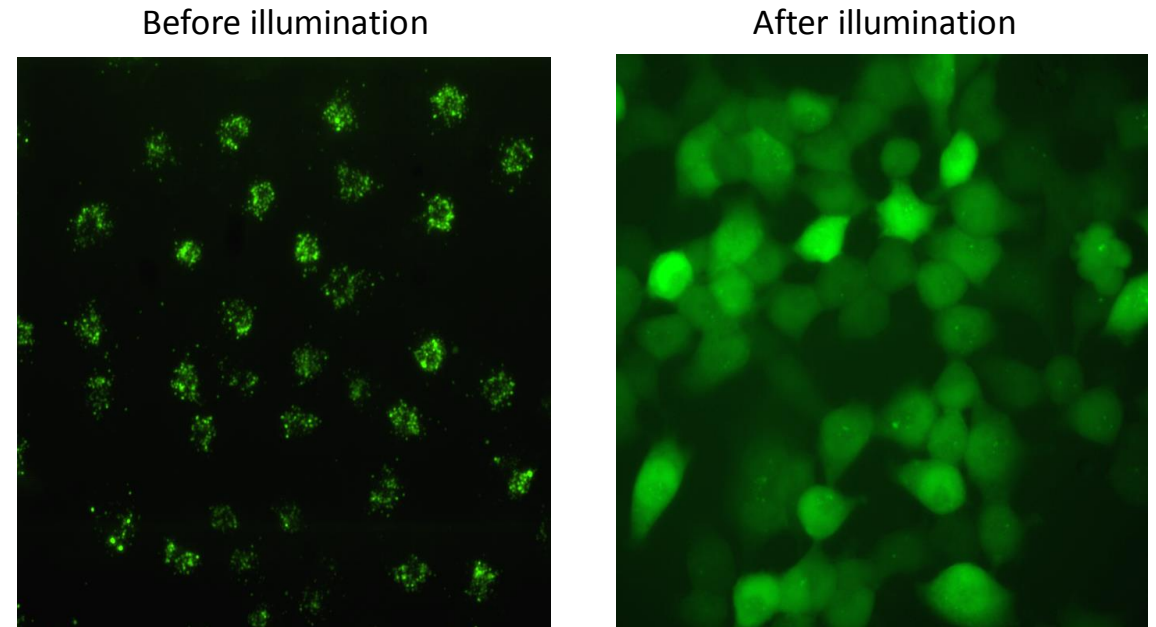
PHOTOCHEMICAL INTERNALISATION

► PCI induced endosomal release

PCI releases Alexa488-dextran from endosomes



PCI releases fluorescent siRNA from endosomes

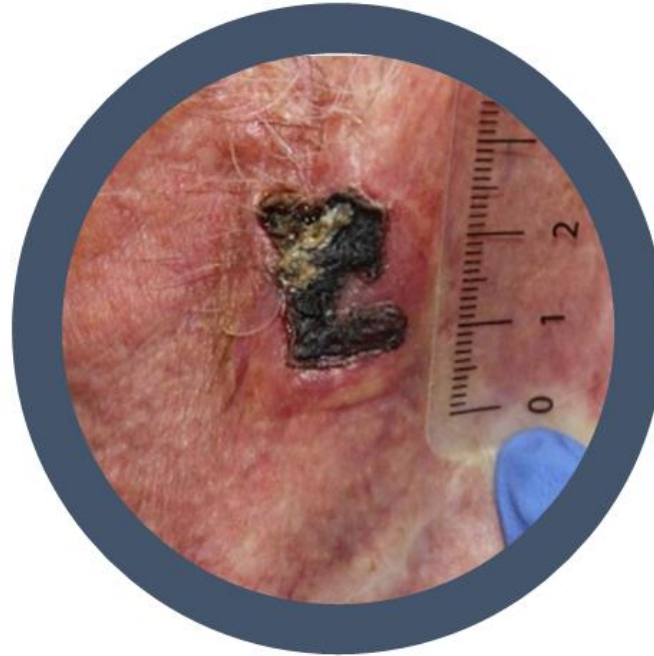


CLINICAL TECHNOLOGY VALIDATION

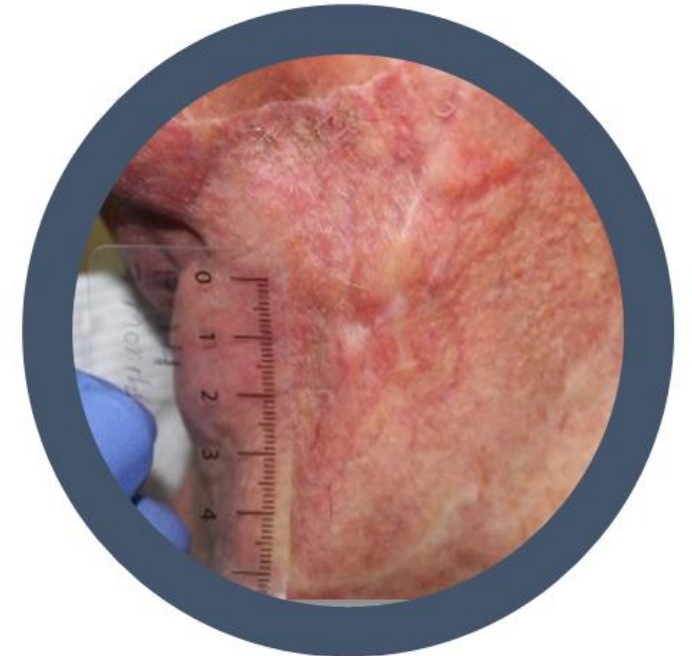
► Phase I of fimaporfin – combined with bleomycin in recurrent/metastatic cancer



Baseline



Day 28

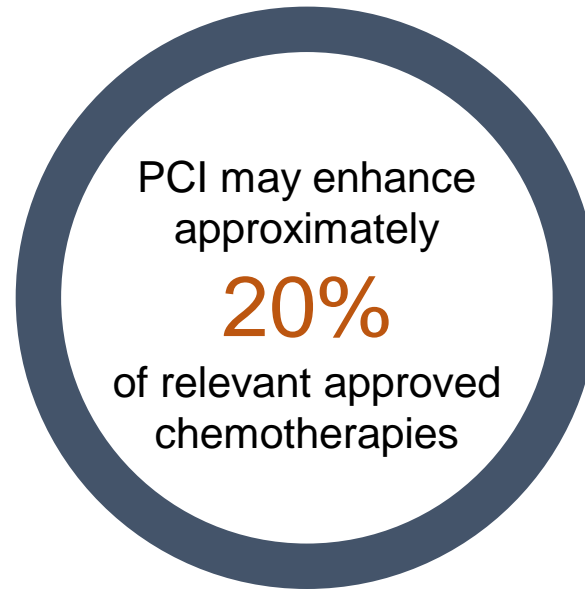


Day 90

- Very promising early signs of tumour response across a range of fimaporfin dose levels
- Apparent strong selectivity for cancer in several patients
- Well tolerated with appropriate pain control and anaesthesia

CHEMOTHERAPEUTICS

- ▶ A cornerstone in current cancer therapy
-

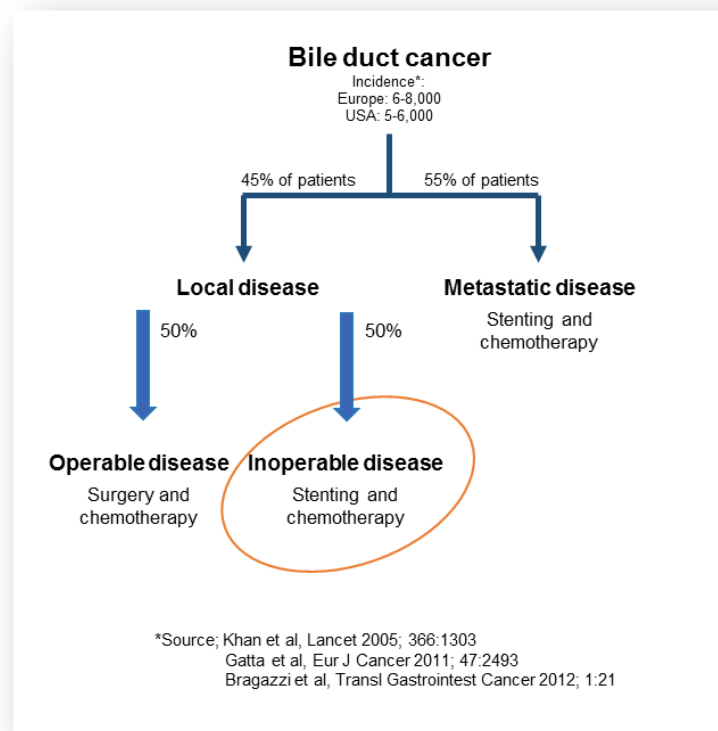


- ▶ **fimaCHEM** may enable approved drugs to fulfil unmet local treatment needs
- ▶ Aim is to complete Phase II in cholangiocarcinoma before out-licensing
- ▶ Opportunity for development in further niche indications

BILE DUCT CANCER

▶ A rare but fatal disease

- ▶ Rare disease, with an incidence rate of 1-2 per 100,000 in the western world
- ▶ Five-year survival rate of less than 5%, and 0% when inoperable



Why target bile duct cancer?

- ▶ Significant inoperable patient population with high unmet local treatment need
- ▶ Orphan indication without approved medical treatments
- ▶ Limited development pipeline
- ▶ Active chemotherapy enhanced by PCI
- ▶ Easy access with light through routine endoscopic methods

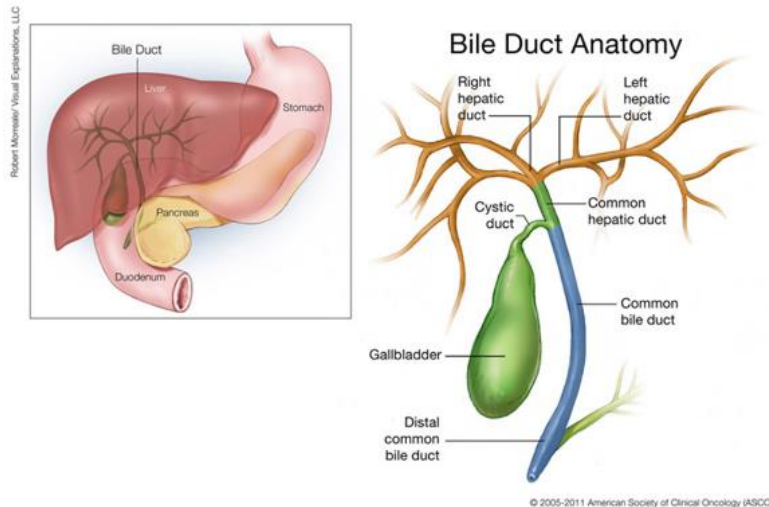
Attractive due to orphan benefits and absence of satisfying treatments

BILE DUCT CANCER

- ▶ Progressing into Phase II with promising early signs of efficacy

Current status and plans:

- ▶ Phase I/II trial ongoing with fimaporfin
 - combination with gemcitabine
 - open-label, multi-center trial in up to 45 patients
 - activation of fimaporfin by intraluminal illumination
- ▶ Safety driven European Phase Ib completed
- ▶ Fourth dose cohort concluded Jan 2016 – no safety concerns
- ▶ Promising early signs of efficacy in third dose cohort – awaiting fourth dose cohort results
- ▶ Progressing into Phase II
- ▶ Increasing number of sites
- ▶ Opening of IND and including US sites
- ▶ Obtain orphan designation



BILE DUCT CANCER – CLINICAL PHASE I/II STUDY

► Early signs of response – preliminary data

► 6 months radiology (CT) data from 3 dose cohorts

	PD	SD	PR	CR	NA*
Cohort 1	1	1			1
Cohort 2		1			2**
Cohort 3		1	1	1	
Cohort 4	Not yet available – subjects on-going				

* Not measurable / Not evaluable by CT

** Considered SD at 6 months by the investigator

- Subjects are in the study for 6 months after PCI treatment
- Dose levels given in cohort 1 and 2 are below what is expected to be effective from previous clinical experience

IMMUNOTHERAPY

▶ A new hope for millions of patients

Total estimated
sales of
\$35bn
in 2023

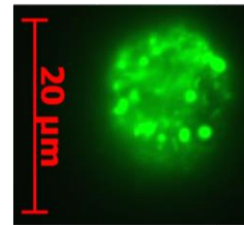
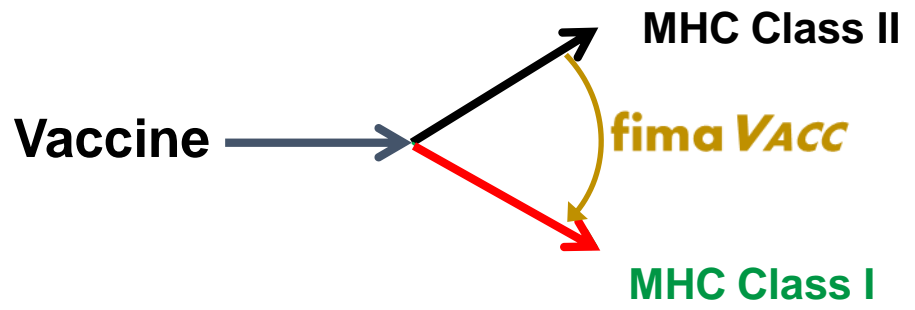
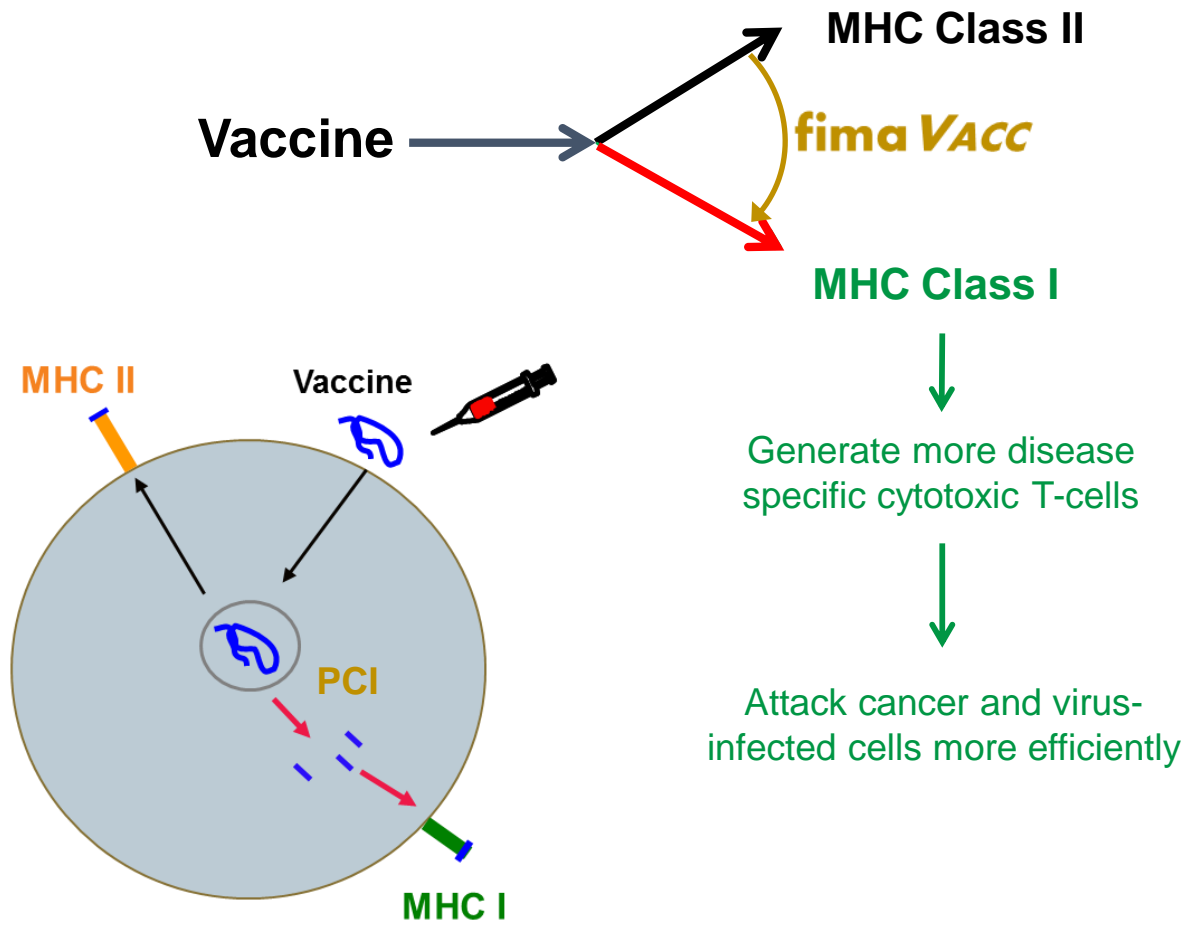
More than
250
projects in
development

Combinations with
**THERAPEUTIC
VACCINES**
may enhance CPI
response rates

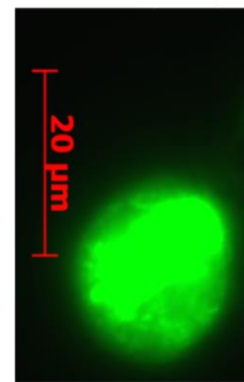
- ▶ **fima VACC** enhances cellular immune responses important for therapeutic effects
- ▶ Moving towards clinical validation, potentially in healthy volunteers
- ▶ Aim is to out-license the technology on non-/semi-exclusive basis
- ▶ Opportunity to develop own therapeutic vaccination products

PCI FOR VACCINATION

▶ Enhancing cytotoxic T-cell response by light-induced cross presentation



Antigen in endosomes



After fima VACC treatment

Ovalbumin antigen in JAWSII dendritic cells

Generate more disease specific cytotoxic T-cells

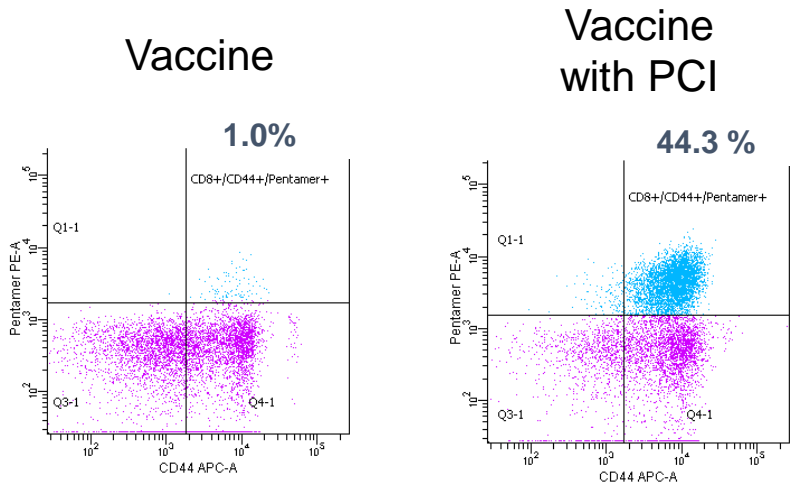
Attack cancer and virus-infected cells more efficiently

THERAPEUTIC VACCINATION

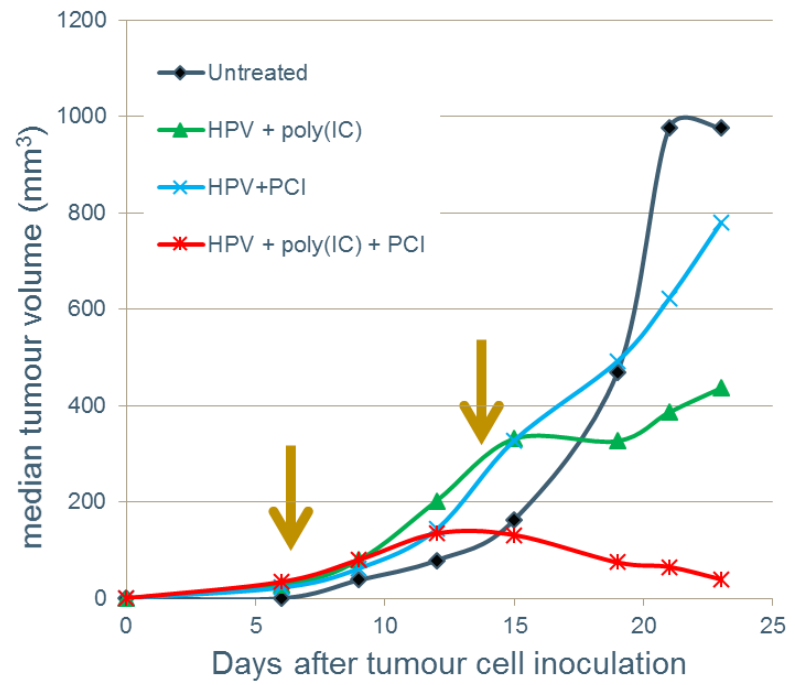
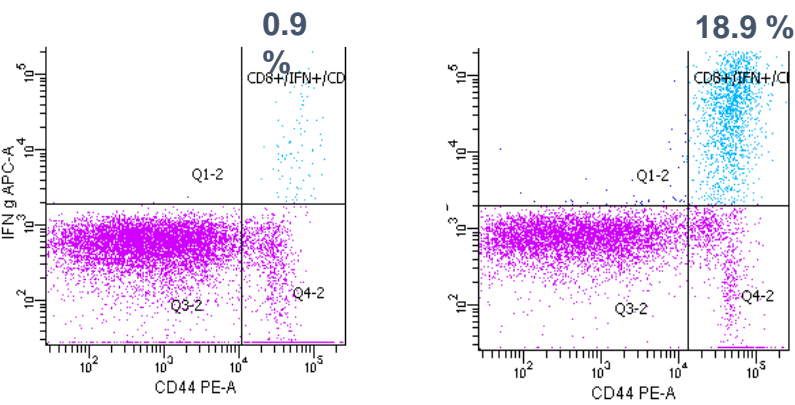
► *In vivo* immunisation with HPV long peptide

fima VACC strongly enhance CD8 T-cell response and induces strong anti-tumour response

HPV pentamer in blood samples



IFN-γ in spleen cells

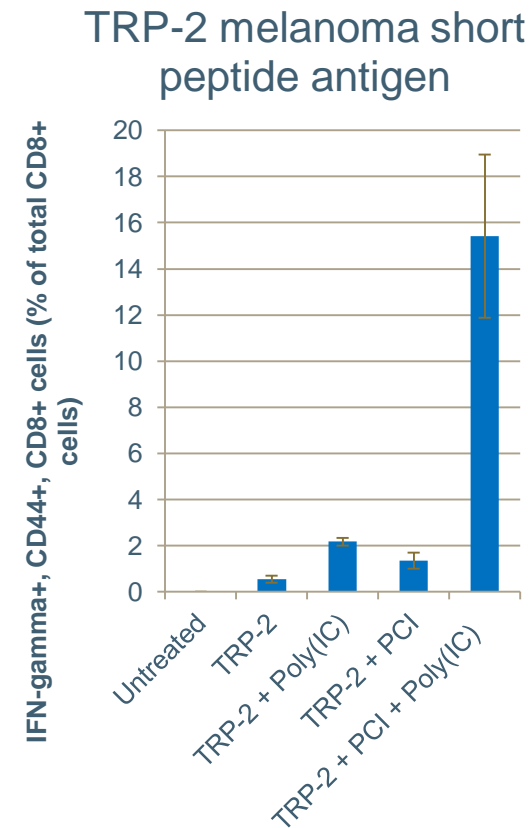
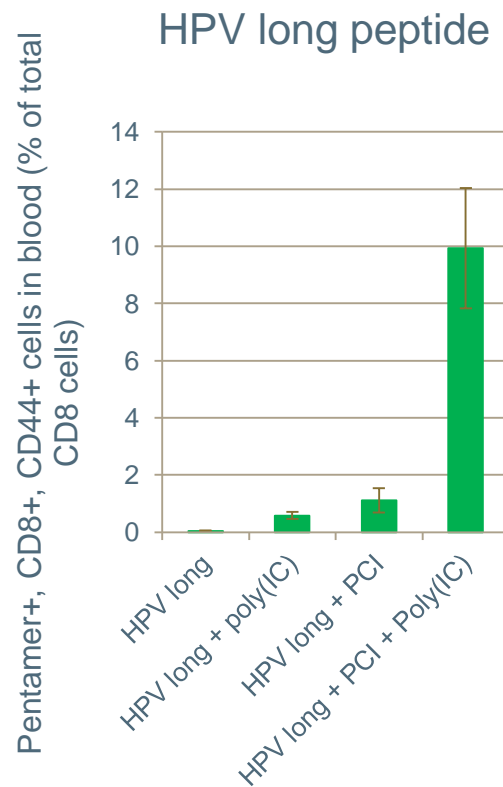


- Intradermal vaccination at days 6 and 13 after tumour cell inoculation
- 5 animals per group

SYNERGY WITH OTHER TECHNOLOGIES

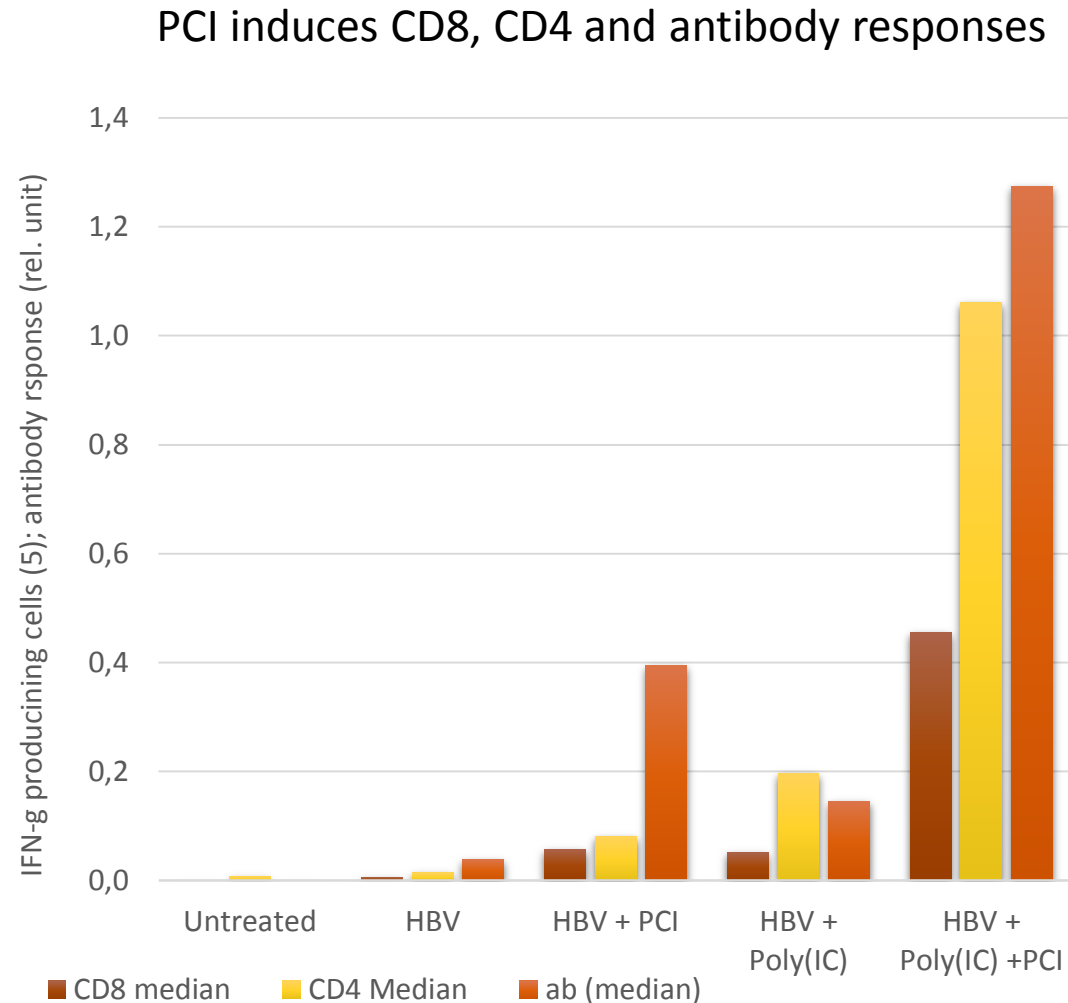
► Acts synergistically with other vaccination enhancement technologies

- Acts synergistically with several commonly used vaccine adjuvants
- Works with many different peptide antigens and stimulates both CTL proliferation and IFN- γ production



ELICIT STRONG IMMUNE RESPONSES

▶ Improving the efficacy of therapeutic cancer vaccines



Promising data from preclinical testing:

- ▶ Elicit strong responses in all important aspects of immune responses
- ▶ Induce antigen-specific killer T-cells
- ▶ Works in synergy with other state-of-the-art vaccine enhancement technologies
- ▶ Opportunity for clinical validation

THERAPEUTIC VACCINATION WITH **fima VACC**

- ▶ Opportunity to play a key role in second generation immunotherapy
-



- ▶ Unique mode of action
 - indication of CTL-induction by MHC class I antigen presentation in dendritic cells and macrophages
- ▶ Broad applicability
 - peptide and protein antigens
 - particulate antigen formulations
 - prophylactic & therapeutic vaccination
- ▶ Safety of fimaporfin confirmed in Phase I studies
- ▶ Excellent stability
 - stable at room temperature
 - stable in solution
 - can be autoclaved
- ▶ Cost effective synthesis

NUCLEIC ACID THERAPEUTICS

- ▶ A treatment modality with huge potential
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Estimated sales of
USD 18bn
in 2030
(RNAi alone)

mRNA is a hot
new field with
**HIGH DEAL
ACTIVITY**

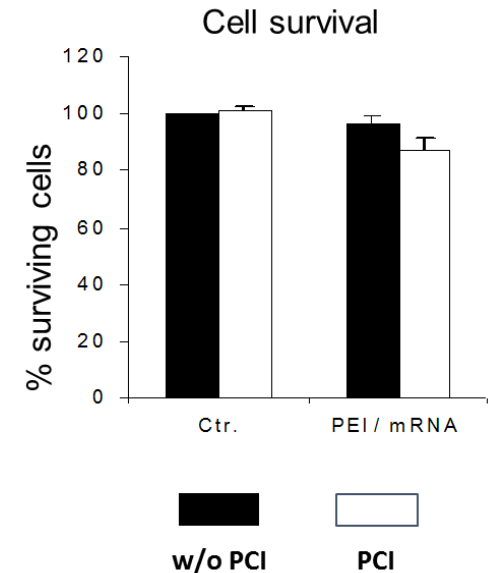
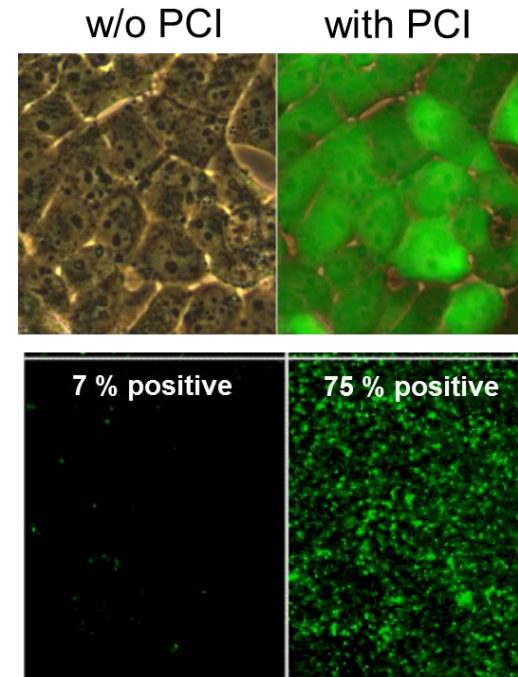
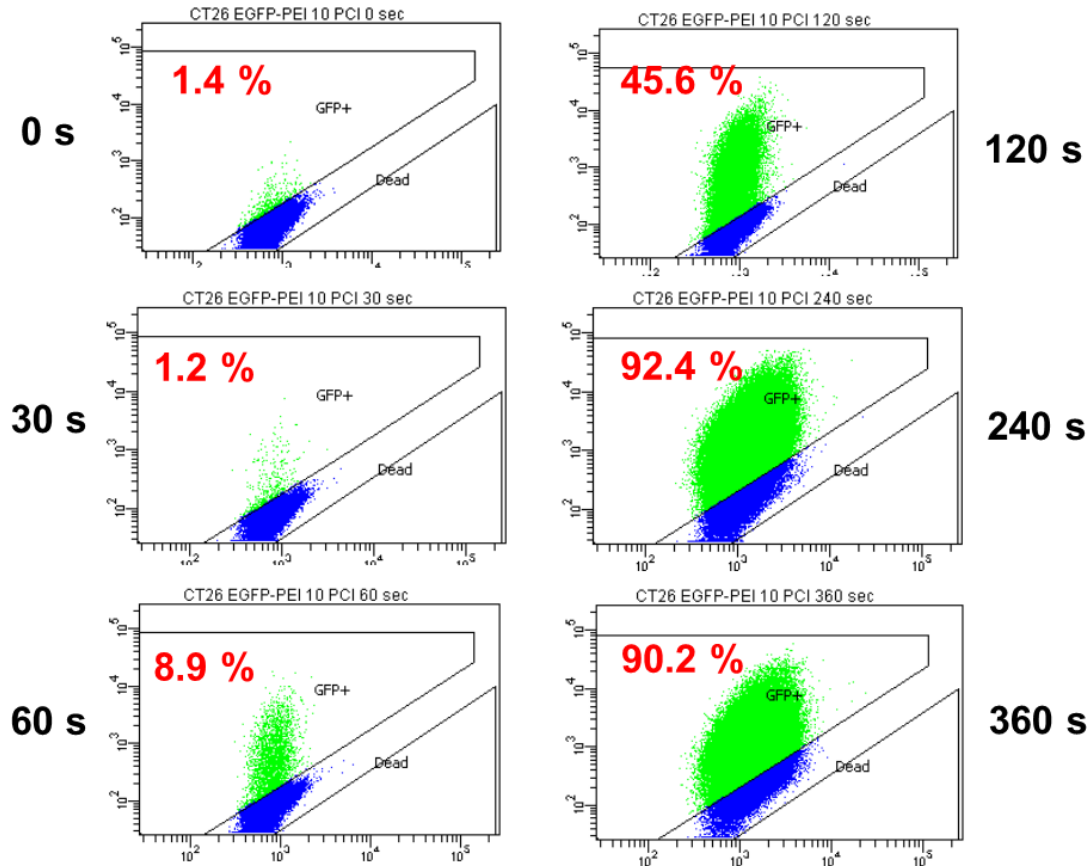
Main
**HURDLE IS
DELIVERY**
into cells

- ▶ **fimaNAC** may provide a delivery solution for many nucleic acid therapy applications
- ▶ Opportunistic collaborative approach
- ▶ Aim is to out-license the technology on non-/semi-exclusive basis

ENHANCING MRNA DELIVERY

► Strongly increased GFP synthesis with increasing light doses

fimaNac with polyethylenimine vehicle



Research Collaborations

- ▶ Three active collaborations within nucleic acid therapeutics and vaccination

Top-10 large pharma company

- Agreement signed in 3Q 2015
- Evaluate synergistic effects between companies' technologies
- One of the global leaders in nucleic acid therapeutics
- Collaborative research funded and initiated
- Data generated in research collaboration to be evaluated-potential for a further partnership

RXi Pharmaceuticals



- Agreement signed 2Q 2015
- Rxi Pharmaceuticals listed on Nasdaq (NASDAQ: RXII)
- Discovers and develops innovative therapeutics within dermatology and ophthalmology
- Results achieved from this research collaboration to be evaluated-potential for closer collaboration

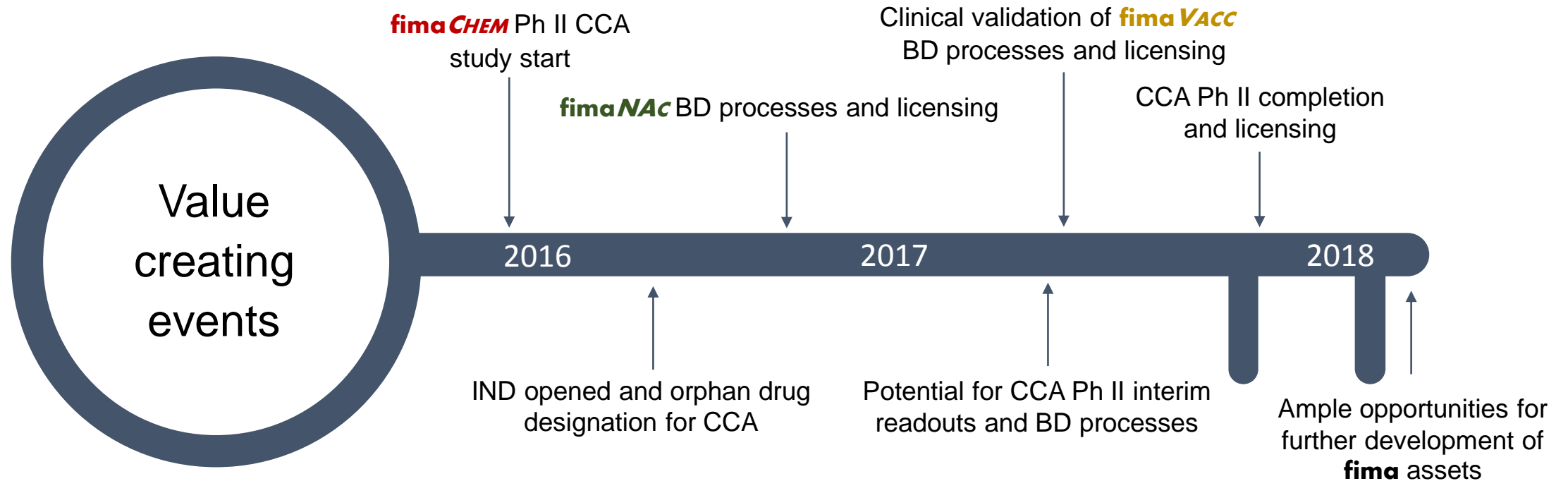
Ultimovacs



- Agreement signed 1Q 2016
- Ultimovacs AS, Norwegian immunotherapy company
- Developing UV1, a therapeutic cancer vaccine directed against human telomerase
- Results from this research collaboration to be evaluated-potential for closer collaboration

KEY MILESTONES THROUGH 2018

► Unlocking the true potential of innovative medicine



PCI BIOTECH

► Unlocking the potential of innovative medicines

Enquiries

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