



# PCI BIOTECH

Unlocking the potential of innovative medicines

Q2 2016 PRESENTATION

August 30, 2016

Per Walday, CEO

Ronny Skuggedal, CFO



# PCI BIOTECH

## ► Important notice and disclaimer

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This presentation may contain certain forward-looking statements and forecasts based on uncertainty, since they relate to events and depend on circumstances that will occur in the future and which, by their nature, will have an impact on PCI Biotech's business, financial condition and results of operations. The terms "anticipates", "assumes", "believes", "can", "could", "estimates", "expects", "forecasts", "intends", "may", "might", "plans", "should", "projects", "programmes", "will", "would" or, in each case, their negative, or other variations or comparable terminology are used to identify forward-looking statement. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in a forward-looking statement or affect the extent to which a particular projection is realised. Factors that could cause these differences include, but are not limited to, implementation of PCI Biotech's strategy and its ability to further grow, risks associated with the development and/or approval of PCI Biotech's products candidates, ongoing clinical trials and expected trial results, the ability to commercialise fimaporfin (Amphinex<sup>®</sup>), technology changes and new products in PC Biotech's potential market and industry, the ability to develop new products and enhance existing products, the impact of competition, changes in general economy and industry conditions and legislative, regulatory and political factors.

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# HIGHLIGHTS

## ► First half 2016 and beyond

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### fima *CHEM*

- Completed Phase I study in bile duct cancer
  - Orphan designation of fimaporfin in bile duct cancer granted in EU
  - Commissioned independent expert evaluation of promising early response results
  - First-in-man study published in Lancet Oncology, with independent commentary
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### fima *VACC*

- Ready for clinical validation in healthy volunteers
  - Read-out 1H 2017 of a major milestone towards potential commercialisation
  - Research agreement signed with Ultimovacs
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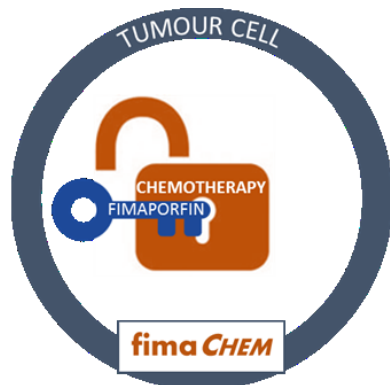
### Strategy

- Launched three well-defined strategic development areas:
- **fima *CHEM***, **fima *VACC*** and **fima *NAC***

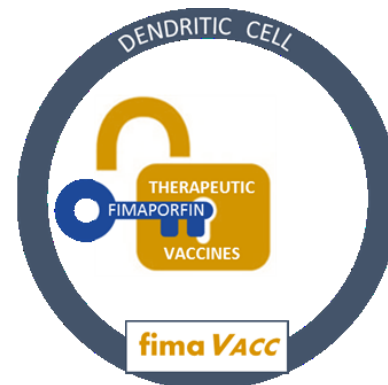
# PCI BIOTECH AT A GLANCE

## ▶ Unlocking the potential of innovative medicines

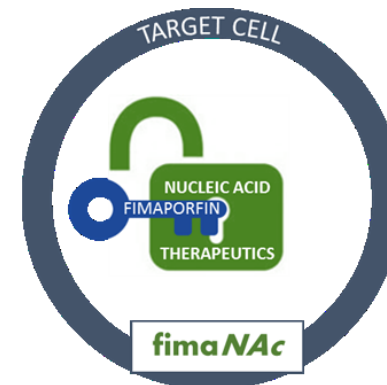
- ▶ A listed (PCIB:NO) cancer-focused biotech company
- ▶ Photochemical internalisation (“PCI”) technology, originating from the Norwegian Radium Hospital
- ▶ Clinical programme
  - fimaCHEM** – Phase I/II with fimaporfin (Amphinex®) for the orphan indication inoperable bile duct cancer
- ▶ Pre-clinical programmes
  - fimaVACC** – Vaccination technology that provides strongly enhanced T-cell responses, ready for 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



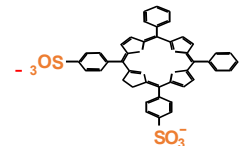
#### The active molecule

- 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

# CHEMOTHERAPEUTICS

▶ A cornerstone in current cancer therapy

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Chemotherapeutics  
worth more than

**\$10bn**

across the 7 major  
markets\*

PCI may enhance  
approximately

**20%**

of relevant approved  
chemotherapies

Niche indications  
may allow for

**ORPHAN  
DRUG**

applications

- ▶ **fimaCHEM** may enable approved drugs to fulfil unmet local treatment needs
- ▶ First-in-man study published in Lancet Oncology\*\*, with independent expert commentary
- ▶ Ready for Phase II in bile duct cancer with promising early signs of efficacy
- ▶ Opportunity for development in further niche indications

# FIRST-IN-MAN STUDY PUBLISHED IN LANCET ONCOLOGY

► With independent expert commentary

## Disulfonated tetraphenyl chlorin (TPCS<sub>2a</sub>)-induced photochemical internalisation of bleomycin in patients with solid malignancies: a phase 1, dose-escalation, first-in-man trial

Ahmed A Sultan\*, Waseem Jerjes\*, Kristian Berg, Anders Högset, Charles A Mosse, Rifat Hamoudi, Zaid Hamdoon, Celia Simeon, Dawn Carnell, Martin Forster, Colin Hopper

### Summary

**Background** Photochemical internalisation, a novel minimally invasive treatment, has shown promising results in enhancing and site-directing the effect of anticancer drugs by illumination, which is achieved through tetraphenyl chlorin (TPCS<sub>2a</sub>), in mediating photochemical internalisation of bleomycin. We assessed the safety and tolerability of a newly developed photochemical internalisation of bleomycin in patients with recurrent solid malignancies.

**Methods** In this phase 1, dose-escalation, first-in-man trial, we assessed the safety and tolerability of photochemical internalisation of bleomycin in patients with recurrent, advanced, or metastatic cutaneous, head and neck, or colorectal cancer. The study was a randomised, controlled, phase 1 trial. The primary endpoint was the safety and tolerability of photochemical internalisation of bleomycin. The secondary endpoint was the efficacy of photochemical internalisation of bleomycin. The study was conducted in a single centre. The study was approved by the local research ethics committee. The study was registered at ClinicalTrials.gov (NCT01874441).

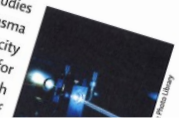
Articles



Comment

## Photochemical internalisation for solid malignancies

Photochemical internalisation is a light-based therapeutic approach that has shown promise for enhancing the efficacy of a range of macromolecules including targeted proteins, genes, and chemotherapeutics.<sup>1</sup> It is a special case of photodynamic therapy, which has been approved for several cancer and non-cancer indications.<sup>2</sup> In photodynamic therapy, photosensitiser and light in the presence of oxygen. Since damage to healthy tissue is minimal following photodynamic therapy,<sup>3</sup> excellent cosmetic effects are typically seen, which makes this type of therapy well suited for the treatment of lesions in the head and neck region. Repeated photodynamic therapy treatments are included in the management of early-stage head and neck cancer. The effects seen with ionising radiation. In studies using selective electroporation of the plasma membrane, a 100-times increase in bleomycin toxicity has been reported,<sup>4</sup> thereby providing the rationale for the photochemical internalisation approach in which membrane-bound photosensitisers. In the first clinical trial, Ahmed Sultan et al. present the first clinical trial of photochemical internalisation of bleomycin in patients with recurrent solid malignancies. The study was a randomised, controlled, phase 1 trial. The primary endpoint was the safety and tolerability of photochemical internalisation of bleomycin. The secondary endpoint was the efficacy of photochemical internalisation of bleomycin. The study was conducted in a single centre. The study was approved by the local research ethics committee. The study was registered at ClinicalTrials.gov (NCT01874441).



THE LANCET **Oncology**  
the premier publication worldwide for original clinical trials research in oncology

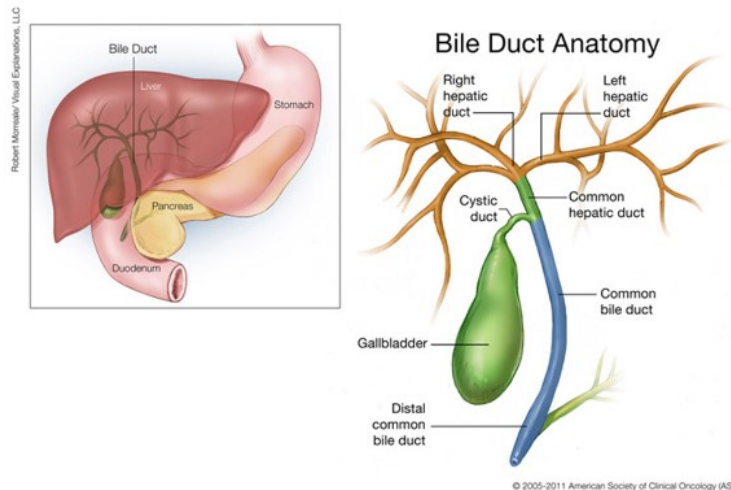
“The results of this phase 1, first-in-man, dose-escalation trial... are encouraging. Overall, the results... suggest that photochemical internalisation might have a role in the treatment of early lesions and palliation of advanced disease... These findings provide the basis for further studies.”



# 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
- ▶ Phase I/II trial ongoing with fimaporfin in combination with gemcitabine



## 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

## ▶ A sizeable orphan market potential

### ▶ Immediate target market is as first line treatment

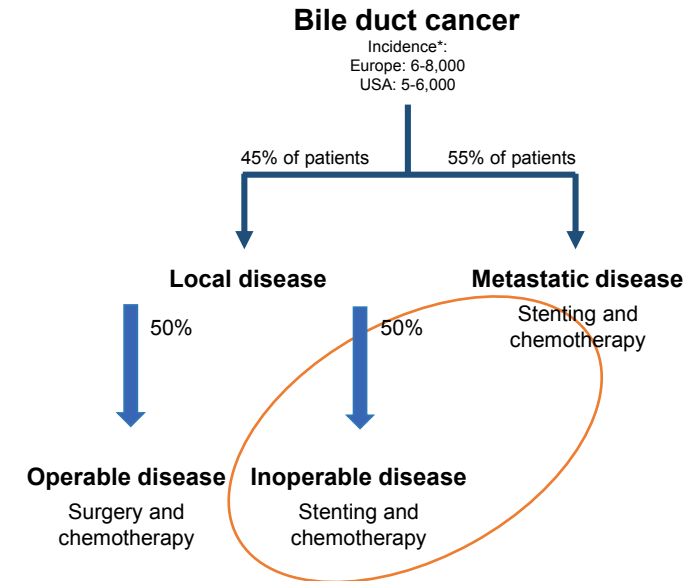
- Incidence is close to 15,000 across Europe and the US
- Immediate target is inoperable patients with local disease
- Approximately 3,000 assumed to be eligible for **fimaCHEM**
- Possible upside potential in more advanced metastatic disease

### ▶ High price potential

- Lack of approved medicinal treatment options
- Orphan indication implies a high price

### ▶ Potential significant majority share of the market

- Anticipated benefits
  - No competing marketable treatment alternatives
  - Greater efficacy due to local chemotherapy boost
  - Easy light access through established standard procedures



\*Source; Khan et al, Lancet 2005; 366:1303  
Gatta et al, Eur J Cancer 2011; 47:2493  
Bragazzi et al, Transl Gastrointest Cancer 2012; 1:21

# BILE DUCT CANCER

## ▶ Current status

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- ▶ **Phase I finished with good tolerability and promising early signs of efficacy**
  - No serious unexpected safety findings and no apparent increase in adverse reactions with increasing doses
  - Commissioned independent expert evaluation of early promising response data – expected Q3 2016
  
- ▶ **Fimaporfin granted orphan designation in EU for use in bile duct cancer**
  - Supports further development in this indication
  - Provides important development and commercialisation benefits
  
- ▶ **Phase II strategy to be determined when independent evaluation of response is available**
  - Considering whether the study can be designed as a pivotal study with possible market approval potential
  - A successful pivotal study could significantly shorten the time to market for this orphan indication

# IMMUNOTHERAPY

▶ A new hope for millions of patients

Total estimated immunotherapy sales of

**\$35bn**

in 2023\*

More than

**100**

projects in development\*\*

Combinations with  
**THERAPEUTIC  
VACCINES**  
may enhance CPI<sup>1</sup>  
response rates

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

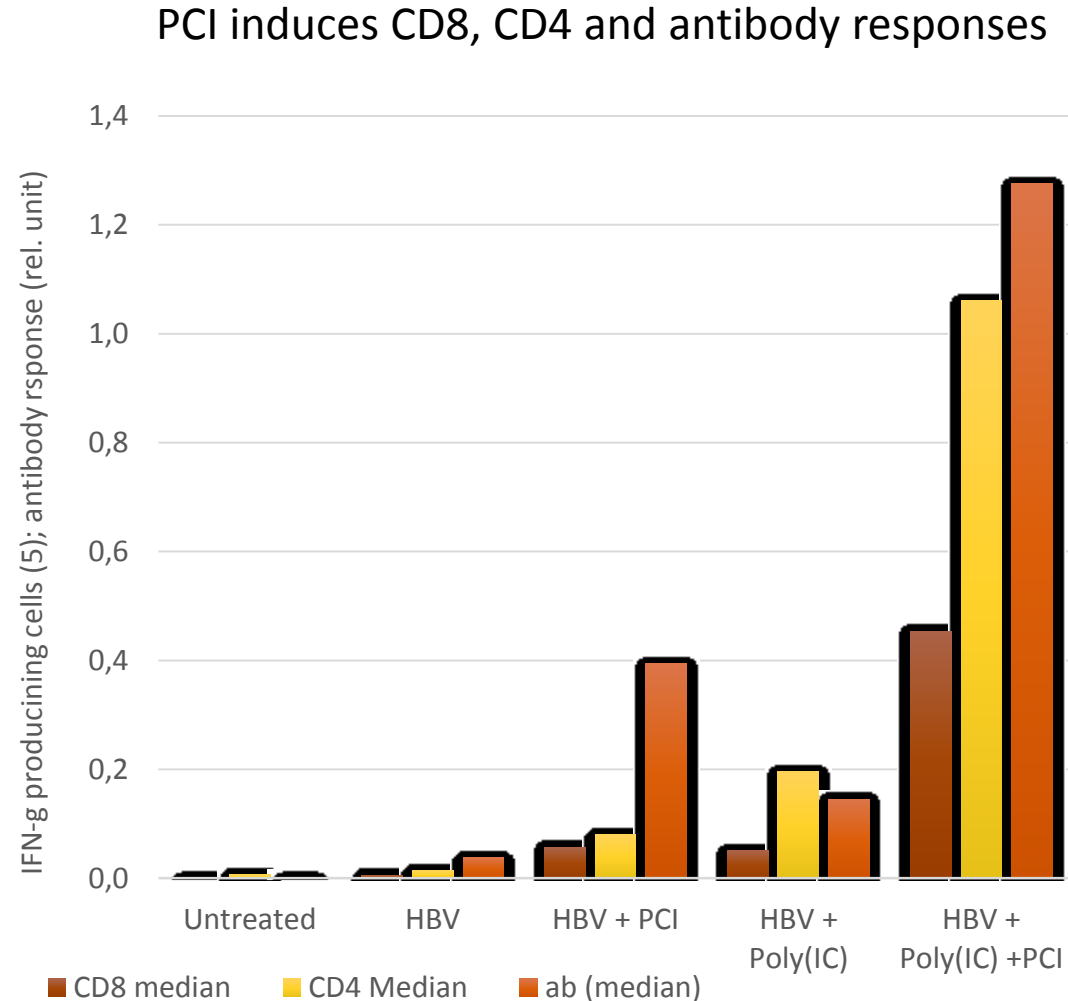
\* Citi Research "Immunotherapy – the beginning of the end for cancer". Baum, May 2013

\*\* Clinicaltrials.gov. PCIB analysis, August 2016

<sup>1</sup>CPI: Checkpoint inhibitors

# PCI VACCINATION

## ► Improving the efficacy of therapeutic cancer vaccines

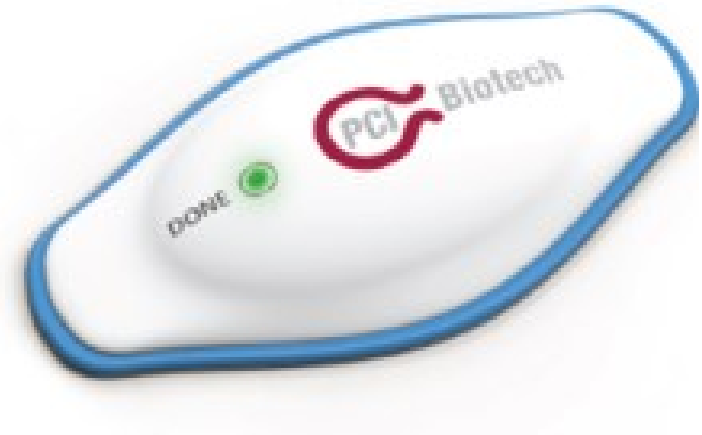


### Promising preclinical data:

- Elicit strong responses in all important aspects of immune responses
- Induce antigen-specific killer T-cells
- Long term effects in spleen indicate generation of immunological memory
- Works in synergy with other state-of-the-art vaccine enhancement technologies

# THE **fima VACC** POTENTIAL

- ▶ 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
  - ▶ Excellent stability
    - few logistical challenges (stable at room temperature and solution and can be autoclaved)
  - ▶ Cost effective synthesis
  - ▶ Important recent IP generation
  - ▶ Ready for clinical validation in healthy volunteers



# READY TO ENTER CLINICAL VALIDATION

- ▶ Well-designed phase I study in healthy volunteers with read-out 1H 2017

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- ▶ Covance selected as strategic partner for this clinical validation
  - Phase I unit in Leeds, UK
- ▶ Objective:
  - Determine the safety, tolerability and immune response of **fima VACC** in healthy subjects
- ▶ Design:
  - Open-label, antigen-adjuvant controlled study (up to total 80 subjects)
- ▶ Endpoints:
  - Safety and immunological (induction of vaccine-specific immune responses)
- ▶ Timelines:
  - Study start 2H 2016; completion 1H 2017
- ▶ Cost:
  - Up to NOK 20 million in external cost

*Converting **fima VACC** to a clinical asset – a major milestone towards commercialisation*

# 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

# RESEARCH COLLABORATIONS

- ▶ Three active collaborations within nucleic acid therapeutics and vaccination

## Top-10 large pharma company

- 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



- 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



- 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



# FINANCE

## ► Key financial figures

<i>(In NOK 1,000)</i>	<b>2016 Q2</b>	<b>2016 1H</b>	<b>2015 FY</b>
Other Income	2 332	4 917	10 467
Operating costs	11 613	21 506	43 096
Operating results	-9 281	-16 589	-32 629
Financial items	111	283	707
<b>Comprehensive income</b>	<b>-9 170</b>	<b>-16 306</b>	<b>-31 922</b>
<b>Cash &amp; cash equivalents</b>	<b>31 028</b>	<b>31 028</b>	<b>49 249</b>
<b>Total liabilities</b>	<b>-11 360</b>	<b>-11 360</b>	<b>-12 114</b>
<b>Net cash flow from operating activities</b>	<b>-8 607</b>	<b>-18 222</b>	<b>-31 974</b>

- Close to NOK 5 million in non-dilutive funding first half of 2016
- Financed into 2017, at current cost base
- Evaluating strategic options, and corresponding capital need and financing alternatives

# PCI BIOTECH

- ▶ Well positioned for attractive development opportunities
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## Main focus going forward:

- ▶ Progressing development of **fimaCHEM** in bile duct cancer
  - Independent evaluation of Phase I results expected 3Q 2016
  - Phase II strategy
- ▶ Clinical validation of **fimaVACC** immunotherapy results
  - Expected to provide study read-out already 1H 2017
- ▶ Partnering and alliance progress for all programmes

# PCI BIOTECH HOLDING ASA

## ► Enquiries

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CEO Per Walday

Cell phone: +47 917 93 429

Telephone: +47 67 11 54 00

E-mail: [pw@pcibiotech.com](mailto:pw@pcibiotech.com)

CFO Ronny Skuggedal

Cell phone: +47 940 05 757

Telephone: +47 67 11 54 00

E-mail: [rs@pcibiotech.com](mailto:rs@pcibiotech.com)

[www.pcibiotech.com](http://www.pcibiotech.com)