



Jan A. Alfheim
CEO

Oncoinvent AS

- Founded in 2010
- Lead candidate Radspherin® expected to enter clinical phase in 2019 for treatment of Peritoneal carcinomatosis
- 3rd company started by serial entrepreneurs Dr. Roy H. Larsen and Professor Øyvind S. Bruland
- 19 fulltime employees, 3 Industrial PhDs, 2 part-time



Dr. Roy H. Larsen, Ph.D.



Professor of clinical oncology Øyvind S. Bruland



Betalutin®



Radspherin®

Radspherin[®]

alpha-emitting microparticles for local applications

A NEW alpha-emitting radioisotope

- High energetic radiation for efficient tumor cell kill
- Local deposition of radiation
- Therapeutic relevant temporal and spatial window
- Low probability of unintended radiation damage

SPECIALLY DESIGNED microparticles

- Carriers for the alpha-emitting isotope
- Degradable and non-toxic
- Regional retention, very little systemic exposure



GMP certified manufacturing premises

- 2 Class B-isotope production suites for Ra-224 and Radspherin®
 - isotope storage room
 - quality control room
 - packaging & shipping room
- a Grade B clean room production suite for particle production
- a Class B-isotope research lab
- a general research lab



Peritoneal carcinomatosis

Peritoneal carcinomatosis (PC) is a metastatic cancer within the abdominal cavity frequently occurring in several primary cancers such as:

- 70 % of patients with ovarian cancer
- 32 % of patients with colorectal cancer
- 10 % of patients with stomach cancer
- 13 % of patients with liver cancer
- 7 % of patients with pancreatic cancer

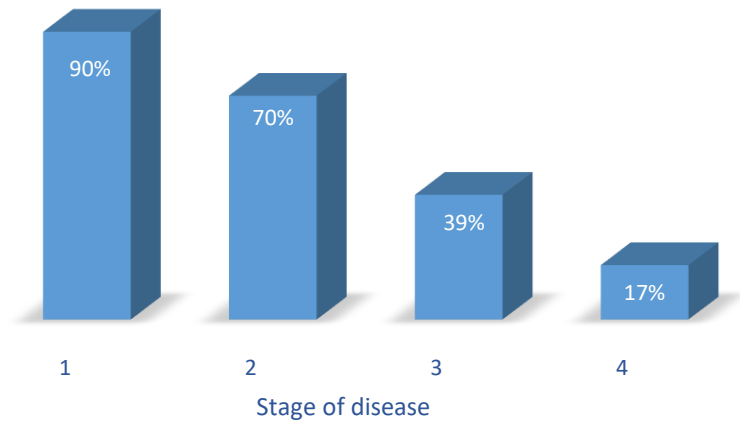


Malignant ascites is a serious condition commonly related to PC

Peritoneal carcinomatosis is the most common terminal feature of ovarian cancer

Peritoneal carcinomatosis in ovarian cancer patients

5 year survival rates in ovarian cancer*

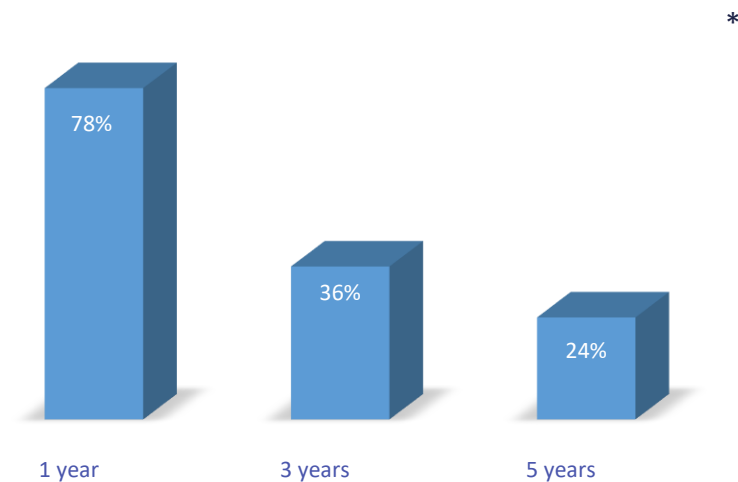


The vast majority of ovarian cancer patients are diagnosed at stage 3 & 4 (presence of metastatic disease) and do not survive beyond 5 years

* source: <http://www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-survival-rates>

Peritoneal carcinomatosis in colorectal cancer patients

Long-term survival of patients with peritoneal carcinomatosis of colorectal origin *



The majority of colorectal cancer patients with peritoneal carcinomatosis do not survive beyond 5 years

* source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4655111/>

Incidence of PC

Ovarian cancer	Yearly incidence	Mortality
• EU	44 150	29 800
• USA	22 300	14 200
• World-wide:	200 000	125 000
70% with metastasis in the peritoneum		

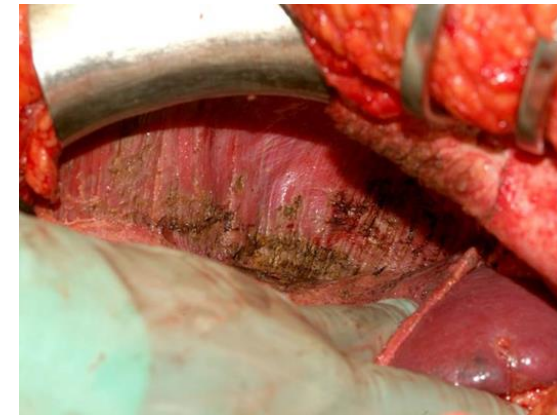
Other indications, EU + USA	Yearly incidence	Incidence of peritoneal carcinomatosis
Stomach cancer	107 000	10 %
Colorectal cancer	477 700	32 %
Liver cancer	90 500	13 %
Pancreatic cancer	128 000	7 %
Mesothelioma	14 600	20 %

EU + USA: Estimated number of patients diagnosed with peritoneal carcinomatosis yearly: 248 000

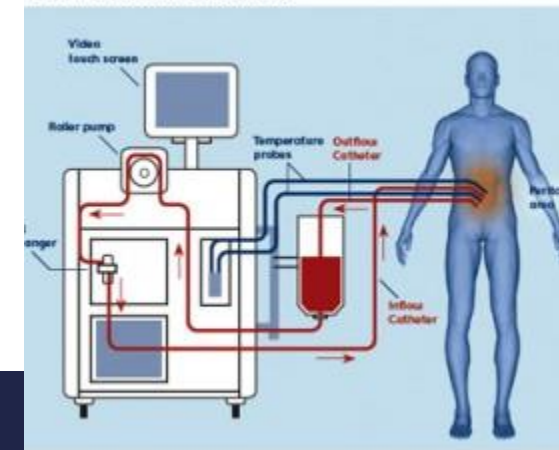
Standard treatment of peritoneal carcinomatosis

Multimodality therapy consisting of:

- Cytoreductive surgery (CRS)
- Intravenous adjuvant chemotherapy
- Intraperitoneal chemotherapy
- Hyperthermic Intraperitoneal Chemotherapy (HIPEC)

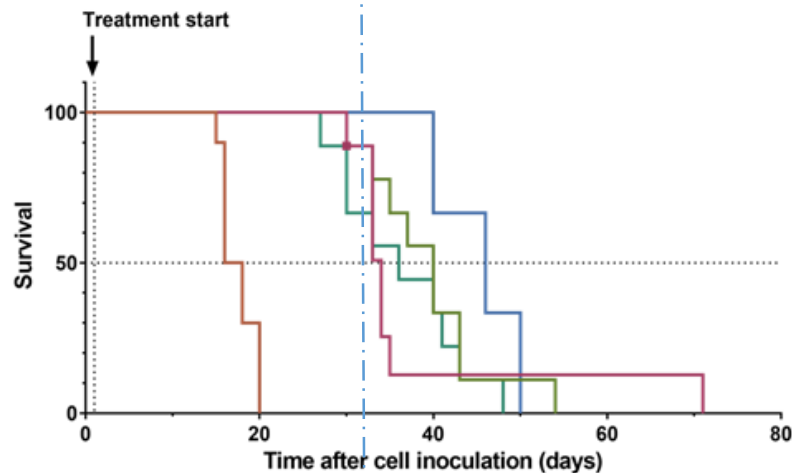


RE. Flow of HIPEC treatment



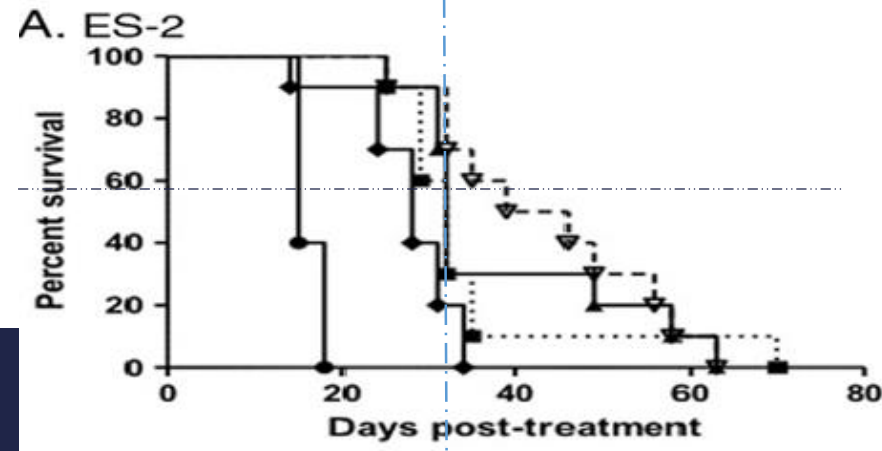
Pre-clinical data:

Radspherin vs Pb-212 RIT



ES-2 model treated with Radspherin

Groups	Median survival
NaCl	17 days
150 kBq/kg ²²⁴ Ra-CaCO ₃ microparticles (8µm)	34 days
300 kBq/kg ²²⁴ Ra-CaCO ₃ microparticles (8µm)	40 days
2x150 kBq/kg ²²⁴ Ra-CaCO ₃ microparticles (8µm)	36 days
1000 kBq/kg ²²⁴ Ra-CaCO ₃ microparticles (8µm)	46 days



Kasten et al., 2017:

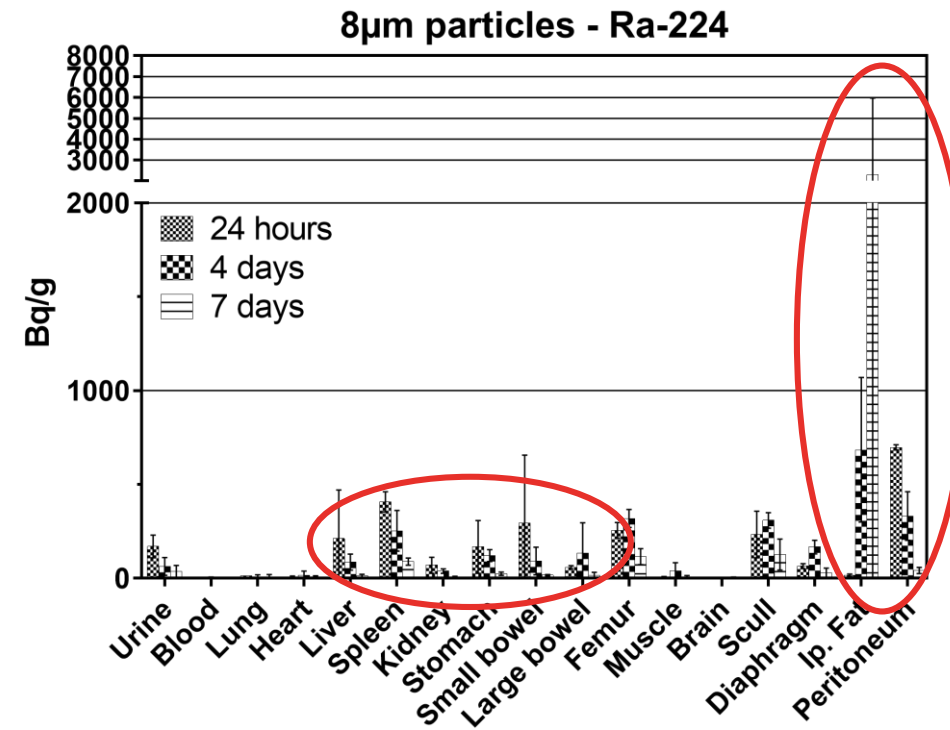
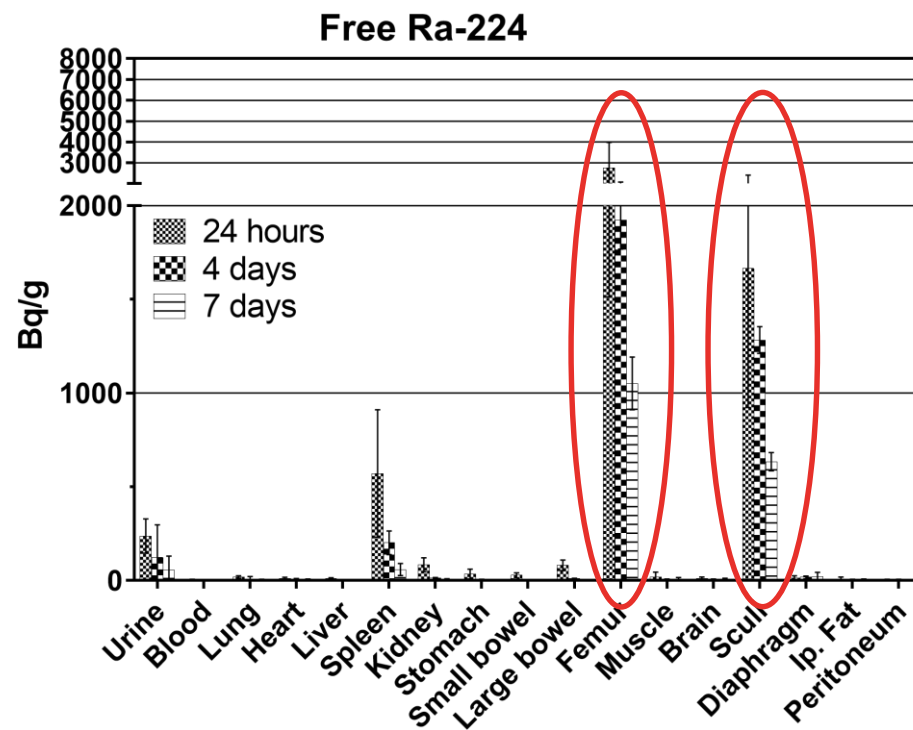
ES-2 model treated with Pb-212-F3-C25 Ab radioimmunotherapy

untreated (filled circles)	MS: 15 days
16,5 MBq/kg (filled diamonds)	MS: 28 days
8.5 MBq/kg (filled squares)	MS: 32 days
17.5 MBq/kg (filled triangles)	MS: 32 days
25,5 MBq/kg (open triangles)	MS: 42.5 days

50-100 x the activity of Pb-212 needed to achieve a similar effect to Ra-224

Pre-clinical data:

Biodistribution of free Ra-224 versus Ra-224 labelled microparticles



Biodistribution after interperitoneal administration in mice without tumor

Oncoinvent collaboration partner:

The Norwegian Radium Hospital

- Part of the Oslo University Hospital dedicated to cancer treatment
- Have contributed with a technical platform and research competence for pre-clinical testing of Radspherin®
- Stein Gunnar Larsen, MD, PhD, Head of dept. Norwegian National Unit for Hyperthermic Intraperitoneal Chemotherapy will lead the clinical trial at the Norwegian Radium Hospital

Oncoinvent collaboration partner:

University Hospitals Leuven, Belgium



Dr. Ignace Vergote, MD PhD FACS FSPS
Chairman, University Hospitals Leuven,



Innovations for better cancer care



Thank you for your attention