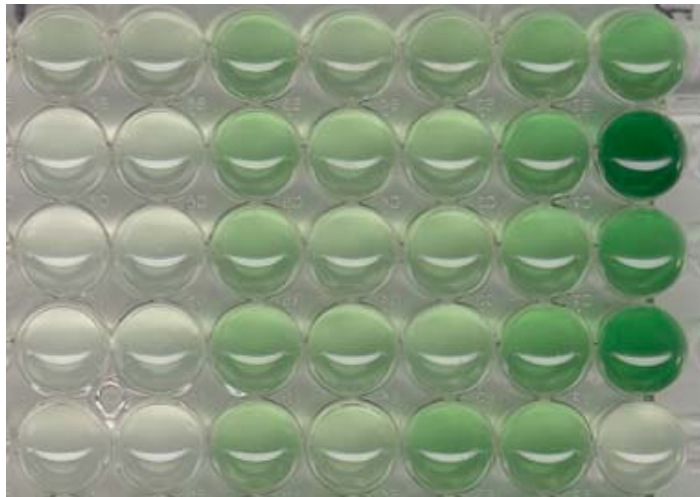


# Universal Cancer Diagnostics - RWTH Aachen University



**CSp18-Kit**

## **Idea to Product® Global Competition**

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Austin, 3<sup>rd</sup> of November 2007

# Critical factor within cancer treatment: EARLY DETECTION



## New cancer incidences 2006

- 400,000 in Germany
- 1.4 m in the US

## Problems in cancer treatment

- Screening rates low
- Cancer detection too late
- Treatment started too late

**„One third of cancer diseases could be cured if it was detected early enough and treated adequately“ (WHO)**



**CSp18-Kit**

Source: American Cancer Society; Federal Bureau of Statistics

# CSp18-Kit provides new cancer screening method

Currently



Annual check-up

Cancer screening not done

Early stage cancer



Symptom appearance

Specialist

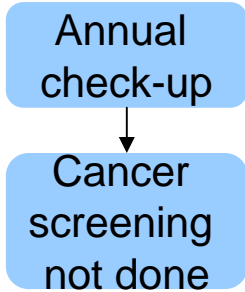
Treatment

Late stage cancer

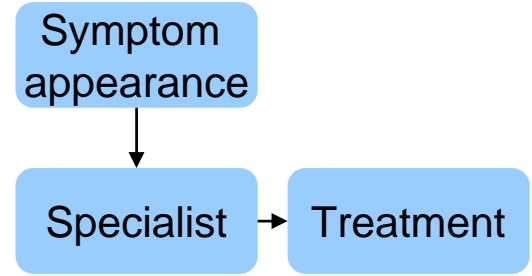


# CSp18-Kit provides new cancer screening method

Currently

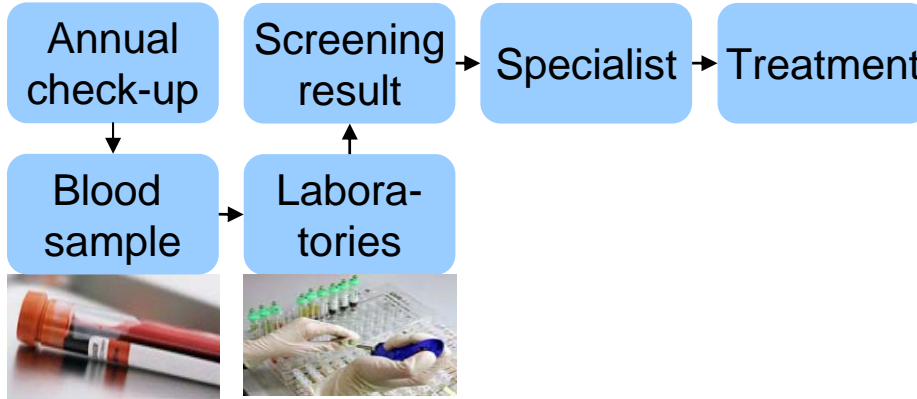


Early stage cancer



Late stage cancer

CSp18-Kit



**Universal cancer screening!**

**70,000 less deaths per year**  
**Significantly less treatment costs**

## Technology

- Novel monoclonal YB-1 antibody detecting p18 fragment in blood serum of tumor patients

## Underlying research work

- Extensive YB-1 research by team of Prof. Dr. med. Peter Mertens at Aachen University Hospital
- Characteristics of p18-fragment discovered by chance



## Product idea: CSp18-Kit

- In-vitro cancer screening marker
- Based on ELISA-method

# 80% of cancer incidences are covered

Tested cancer type	Share of incidences	CSp18 Sensitivity	Untested cancer types:
<b>Example prostate cancer</b>	25%	<b>Inflammatory diseases</b>	<ul style="list-style-type: none"> <li>Skin cancer</li> <li><b>Prostate</b></li> <li>Thyroid</li> <li>Larynx</li> </ul>
Gastro-intestinal	25%	75%	80% positive
Breast	3%	91%	
Lung	12%	80%	
Urogenital system	12%	85%	
Prostate	0% positive	12% false-positive	
Blood cancer	5%	70%	
Lymphoma	3%		
<b>CSp18</b>	<b>Healthy</b>	<b>0% positive</b>	
<b>PSA coverage</b>	Up to 15% false-positive	20% false-positive	65% positive

Source: European Cancer Society

## IP protection

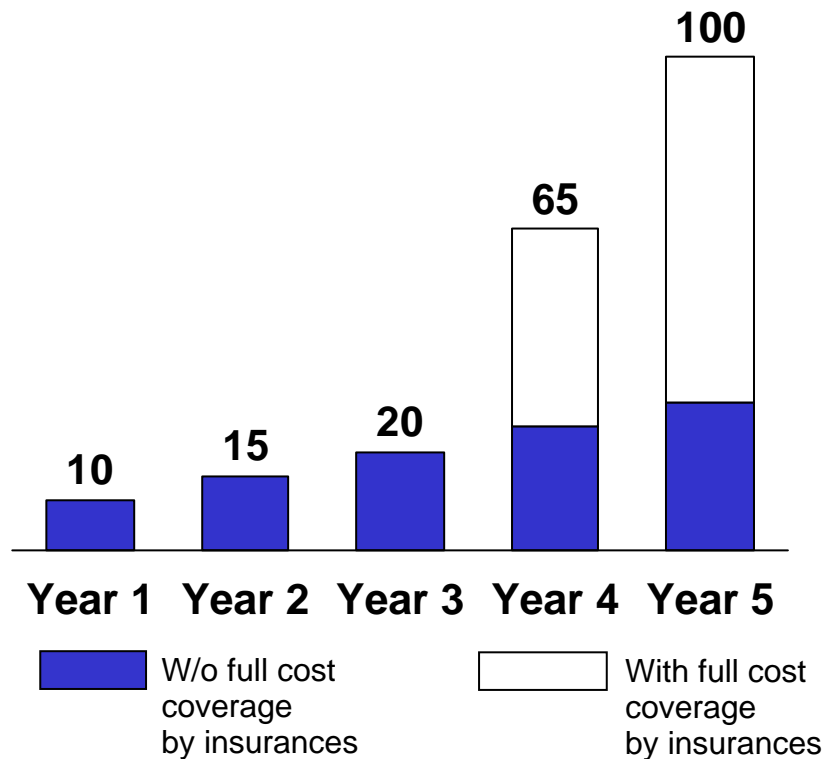
- German patent ownership by founding team
- Filed PCT, already reviewed – so far no objections
- Patent includes
  - Application of YB-1 protein for cancer diagnosis / treatment
  - Required processes for production of monoclonal antibodies

## Competitive advantage

- **CSp18-Kit is universal**; screening markers in R&D pipeline are cancer specific
- YB-1 not focus of diagnostic companies → knowledge advantage

# Market potential: app. \$ 100 m in Germany

## German market potential



- Potential market volume CSp18: 5m tests per year
- Price assumption: \$20 per test
- Production cost estimate: \$1
- Respective treatment cost savings of app. \$500 million
- Savings expand with CSp18 volume – factor 1:5

**This is a global market!**

Sources: Johnson & Johnson; Frost & Sullivan; expert interviews; own estimates

# Stakeholders interests and value proposition

	Patients	Family doctors	Laboratories	Insurance agencies
<b>Interest</b>	<ul style="list-style-type: none"> <li>• Stay healthy</li> </ul>	<ul style="list-style-type: none"> <li>• Generate income</li> <li>• Driven by competition by cost coverage of insurance</li> <li>• Provide medical services</li> </ul>	<ul style="list-style-type: none"> <li>• Make profit</li> <li>• Driven by competition by cost coverage of insurance</li> <li>• Provide medical services</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce cost</li> </ul>
<b>CSp18 value proposition</b>	<ul style="list-style-type: none"> <li>• Increase survival</li> </ul>	<ul style="list-style-type: none"> <li>• Provide services as a total cost of ownership</li> <li>• Improved diagnosis offering</li> </ul>	<ul style="list-style-type: none"> <li>• Provide services as a total cost of ownership</li> <li>• Improved diagnosis offering</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce cost of treatment</li> <li>• Limitation of savings in CSp18 volume</li> </ul>

**Save Lives!**

**Make Money!**

**Save Money!**

Sources: interviews with industry experts (laboratories, pharma lobbyist)

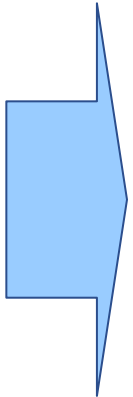
## Main Characteristics

- Fragmented market: 400 resident laboratories in Germany
- Close relationships between buying departments and manufacturers

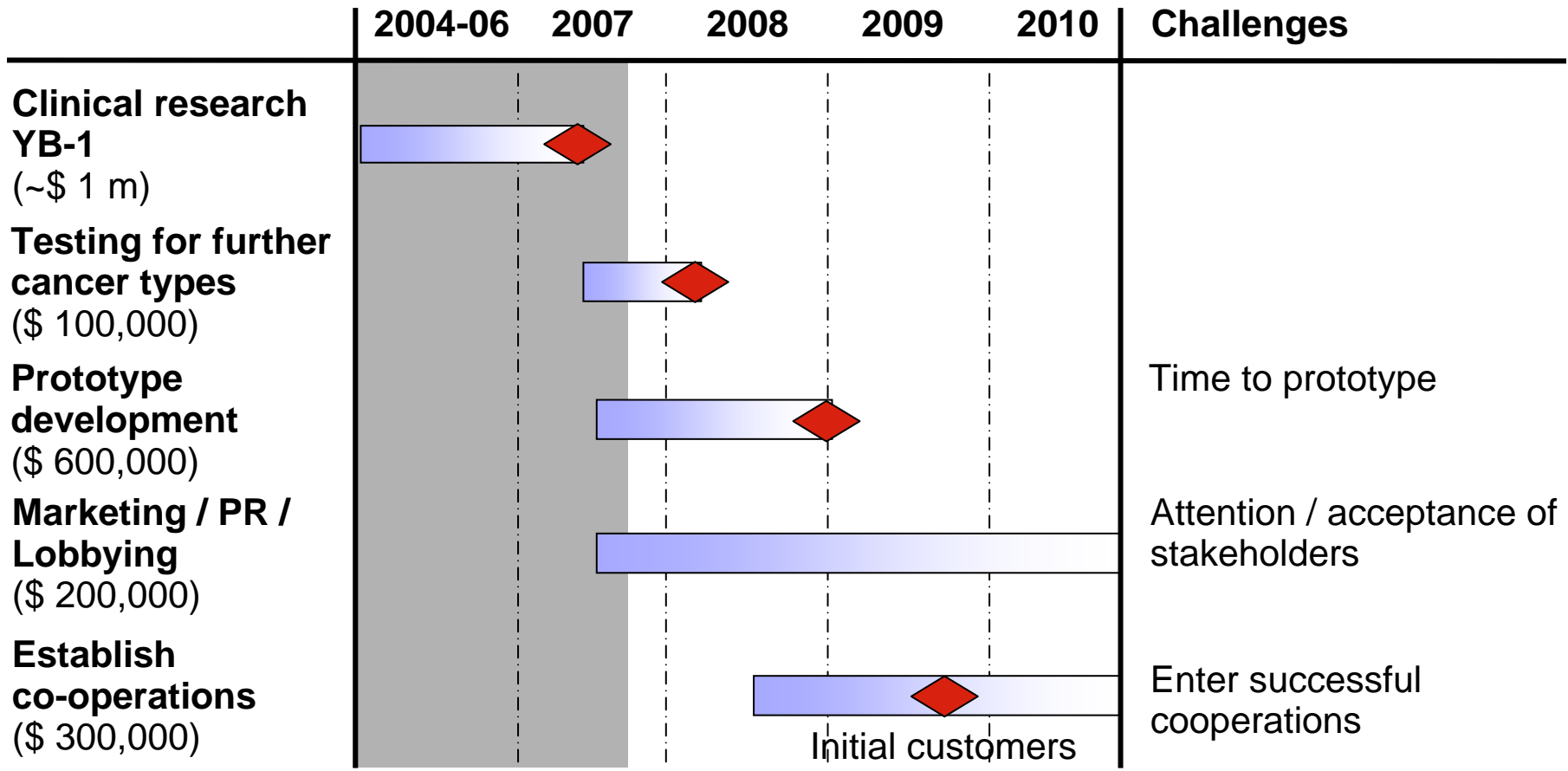


## Customer approach

- Aim for cooperation with large pharmaceutical to develop, manufacture and distribute kit (Roche Diagnostics)
- Provide free sample in market entry phase



# Proof of concept accomplished – commercialisation within next 2 years



**Thank you for your attention**