NF-κB SIGNALING PATHWAY-MANIPULATED DENDRITIC CELLS

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What I will tell you
(as little science as possible  for data and diagrams please visit my poster)

Background information:
- Cancer
- Immunotherapy
- Dendritic cells

Invention:
- Activation of dendritic cells via NF-kB

Outlook:
- How we will continue
- Commercial potential
Cancer – a modern day 1\textsuperscript{st} world disease:

- Second most frequent cause of death in Germany
- One out of four dies of cancer
- More than 200,000 deaths in Germany per year
- 90 \% of successful cancer treatment is still surgery and radiation (\textit{Stahl und Strahl})
Immunotherapy  a new weapon to beat all kinds of cancer:

Our immune system is a well organized army ready to fight any enemy within our body.
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Immunotherapy aims to use this system, or parts derived from it against the disease.
Immunotherapy aims to use this system, or parts derived from it, against the disease.
To equip the solders (i.e. the killer T cells) with a perpetual licence to kill, dendritic cells need to be activated.
Activation of dendritic cells via NF-κB

Activation of the NF-κB signaling cascade is the main event in dendritic cell activation.

In that matter the protein IKK is modified.

We developed a method to make a protein that mimics the modified IKK protein inside the dendritic cells.
Consequences of the activation of dendritic cells via NF-κB

- C70: stimulatory surface molecule
- IL-12: soluble activating signal
- Number of tumor-specific killers
- Killing of tumor cells
Outlook

How we will continue:

This year: First-in-man trial (financed by the DFG):
- Phase I
- Melanoma stage 4
- Safety / feasibility

Next year:
- Phase I/II
- Merkel cell carcinoma
- Primary: overall survival / secondary: immunogenicity
Commercial potential: (difficult in preclinical phase and I am a scientist)

- Competing products cost ~80 000 € per patient
- Production costs of <30 000 € per patient are feasible
- Product can be applied for different types of cancer
- If applicable to ~ 1% of fatal cases of cancer 2000 patients in Germany per year can be treated – profits of 100 000 000 €