



European Federation of Pharmaceutical
Industries and Associations



Vaccines of the future

Kim Schmidt Date: 24/05/2018



“Unlocking
Tomorrow’s Cures”



INTRODUCTION

RNA as memory stick



DNA

Transcription



mRNA

Memory Stick

Information to build proteins

Translation



Proteins

Software

Cell's programs

With mRNA – the natural messenger for health – the body can generate its own therapeutic protein.

INTRODUCTION

The unlimited mRNA opportunity

Infectious disease

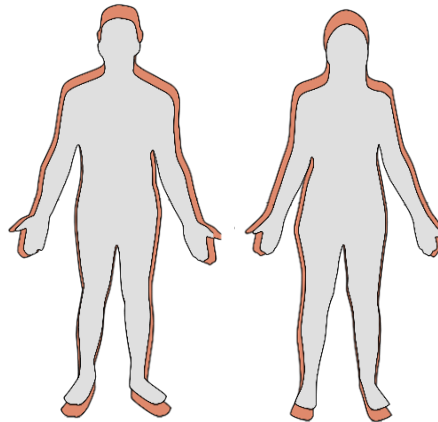
Prophylactic vaccines



Global Infectious Diseases
Unlimited potential

Cancer

Immunotherapy



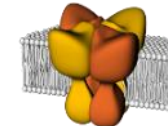
All cancer types
Unlimited potential

Protein replacement

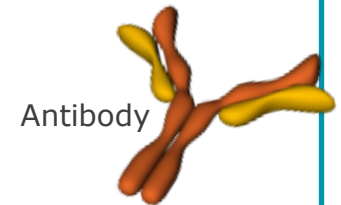
Molecular therapy

Such as...

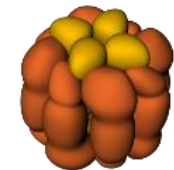
Insulin



Ion channel



Antibody



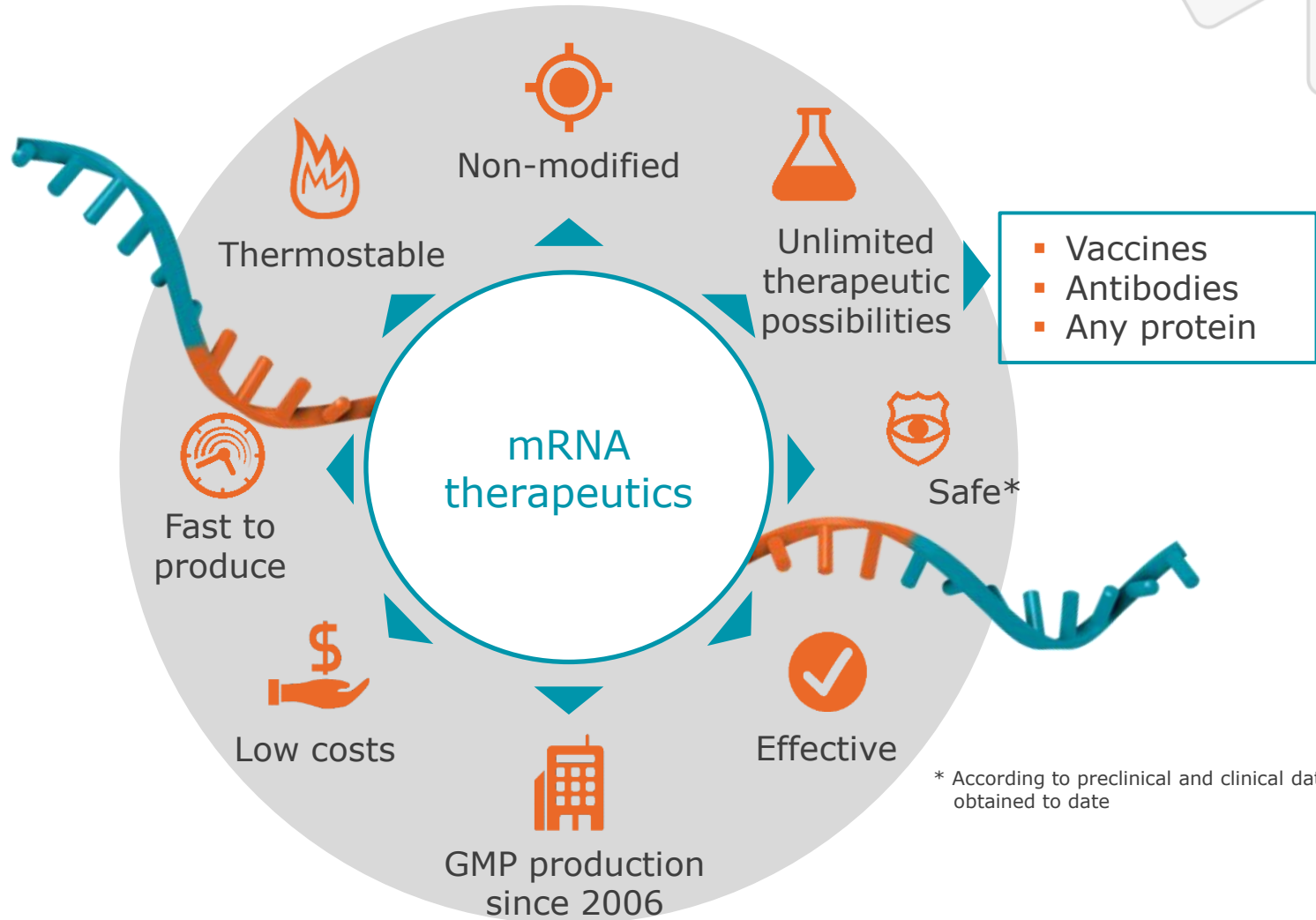
Enzyme

Wide range with almost
unlimited potential

→ Potential to record “healthy messages” for different indications on the “data carrier” mRNA is limitless.

INTRODUCTION

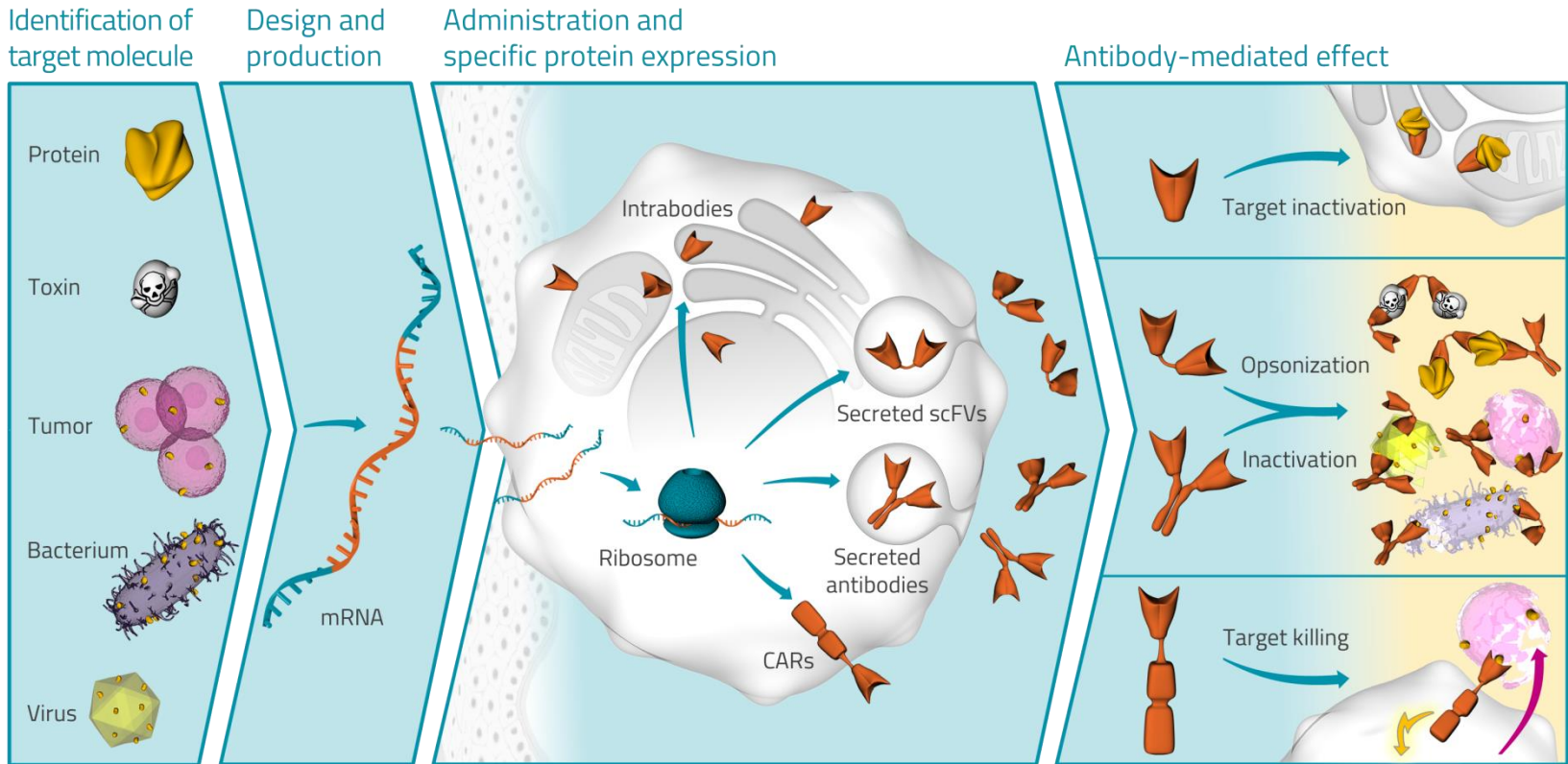
The unlimited mRNA opportunity





MRNA ENCODED ANTIBODY

mRNA encoded antibody – the body makes its own functional antibodies without vaccination





MRNA FOR PROPHYLACTIC VACCINES

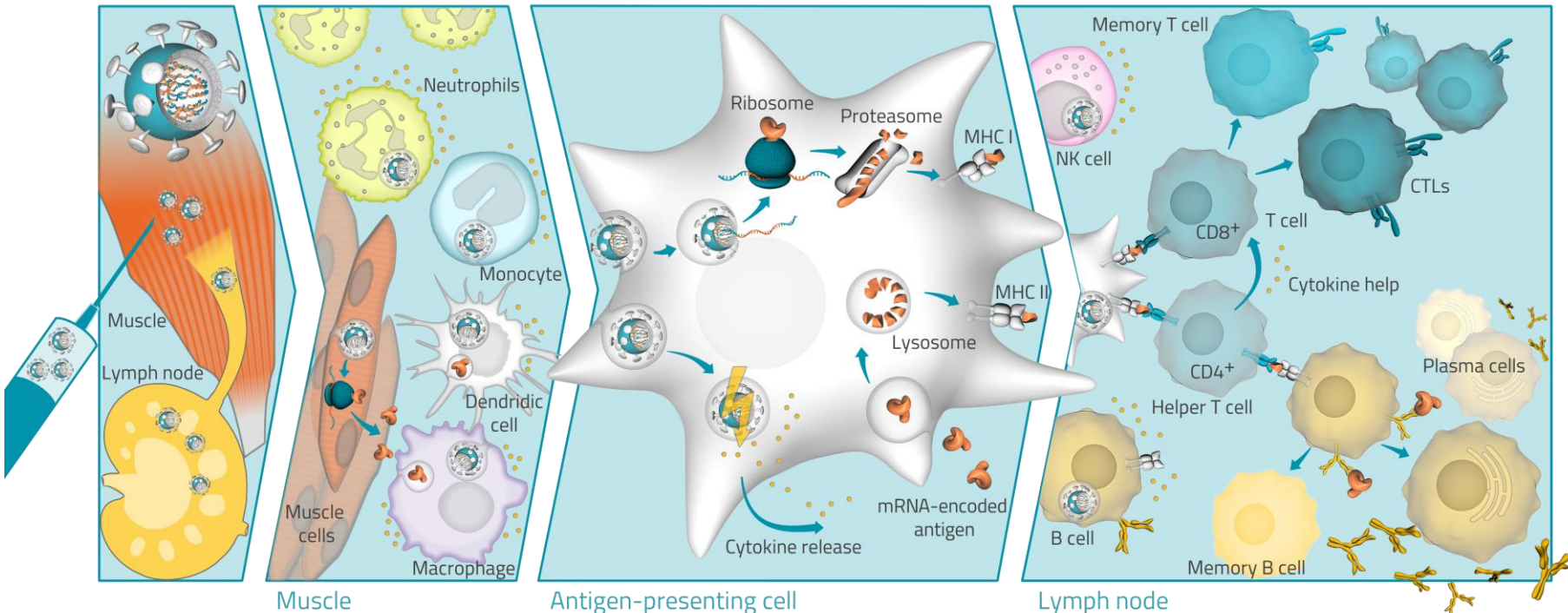
Mode-of-Action of mRNA prophylactic vaccines

Administration, draining to LN

Uptake of mRNA-LNPs, immune cell infiltration

Antigen expression and presentation, stimulation of innate immune system

Activation of adaptive immune system, induction of cellular and humoral responses








SUMMARY

Future directions: opportunities and challenges

- The use of mRNA redefines the future of therapies
- mRNA technology is versatile:

Oncology		Individualized cancer vaccine
Vaccines		Quick response to pandemics
Molecular Therapy		Tackle rare diseases

- Adapting regulatory guidelines for mRNA based vaccines

THANK YOU!

Q&A

UNLOCKING TOMORROW'S CURES

efpia