GOLDNANOPARTIKEL VERMITTELTE LASER-TRANSFEKTION FÜR SCREENING APPLIKATIONEN

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Frankfurt, 23.11.2015

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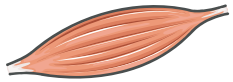
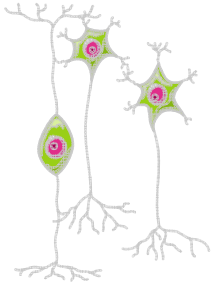
OPTICAL CELL MANIPULATION

Light

Biological sample





Biological effect

- Transfection
  - Knock Down
  - Protein delivery
  - Staining
- Stimulation
- Ablation
- Dissection

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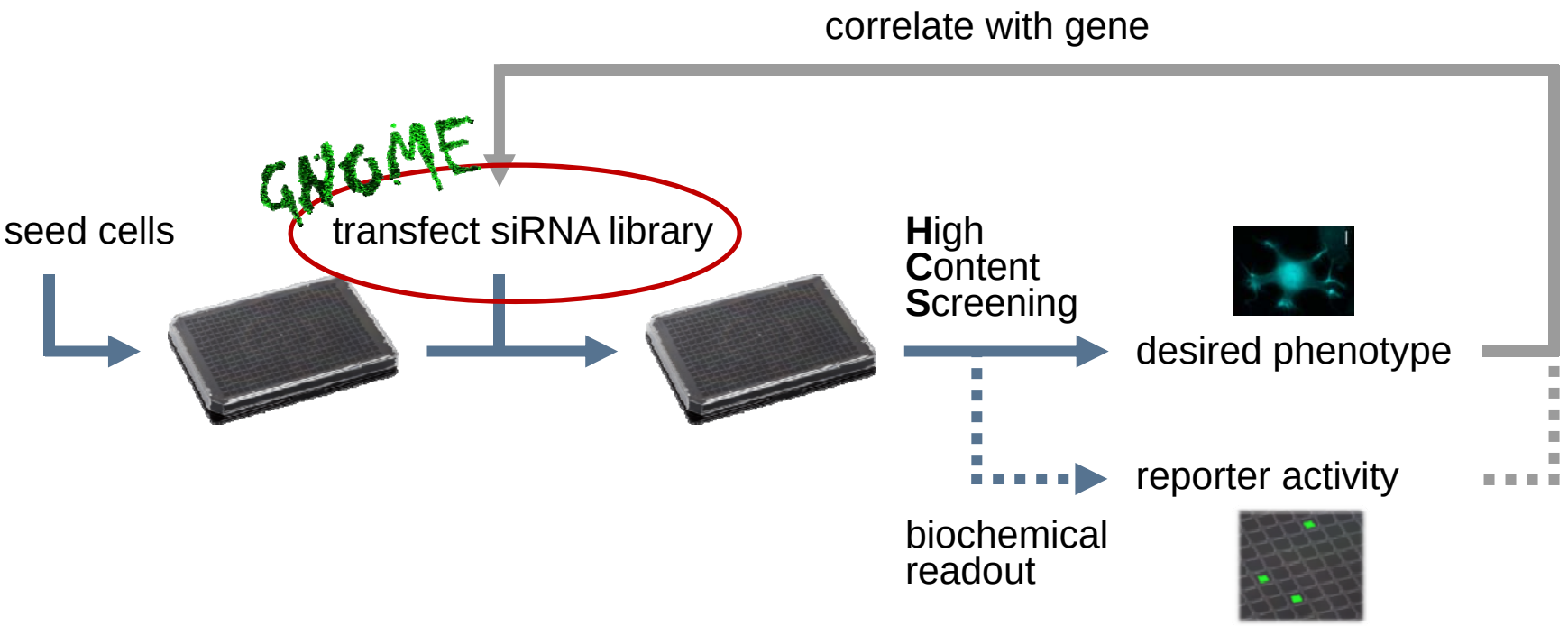
GNOME FOR HIGH-THROUGHPUT SCREENING



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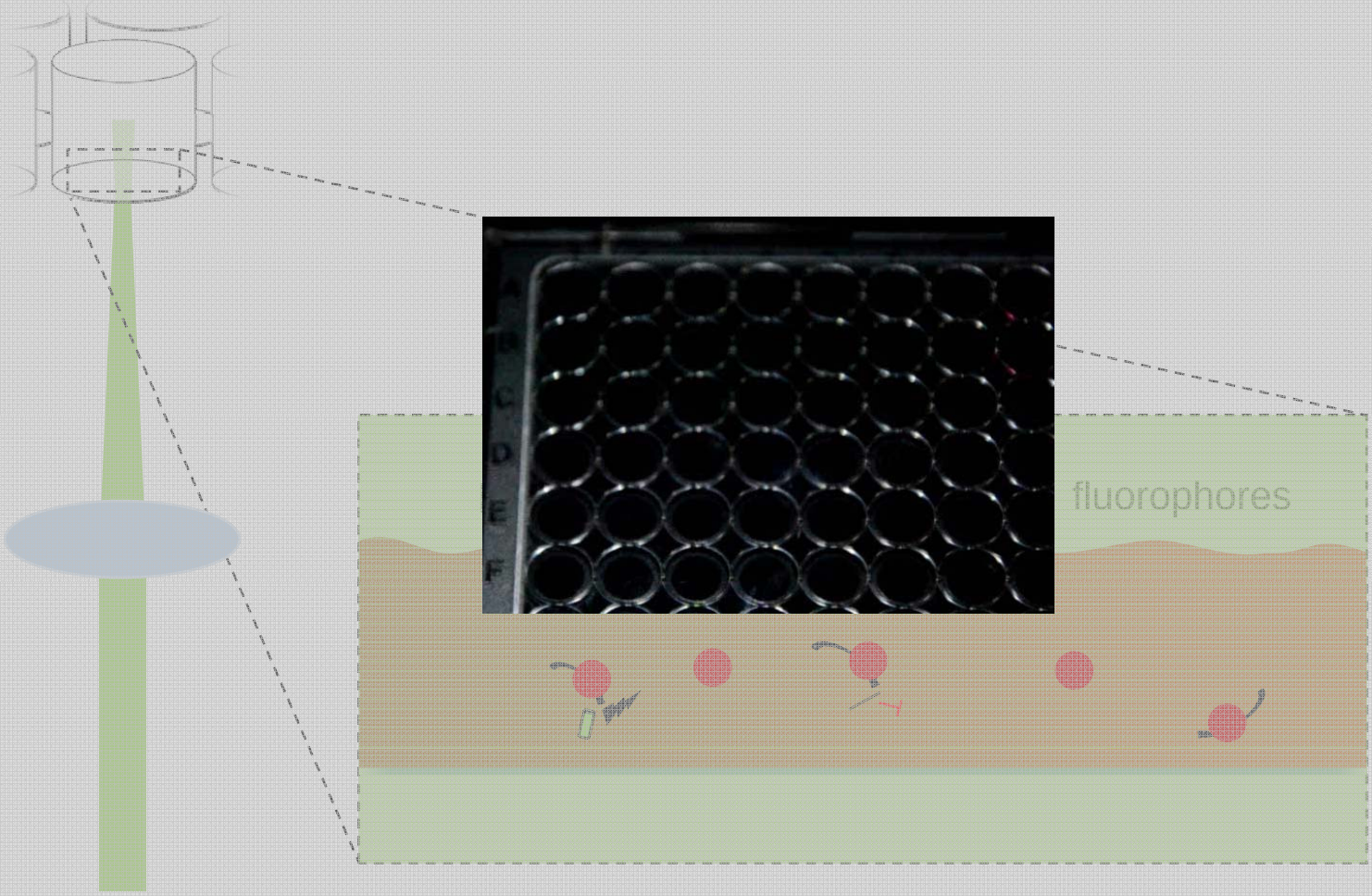
GNOME – EXPERIMENTAL CONCEPT



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TESTED CELL TYPES AND MOLECULES

Cell line	Species
ZMTH3	canine
CHO	hamster
RBE4	rat
GM-7373	bovine
HFF-1	human
LnCap	human
MTH53A	canine
DH82	canine
HepG2	human
NIH-3T3	murine
HEK-293T	human
HL-1	murine
Jurkat	human
L929	murine

Primary cells	Species
Neonatal cardiomyocytes	murine
Spinalganglion cells	murine
MSC	human
HSC	murine
mADMSC	murine
mOsteoblasts	murine

Molecule
Dextran-FITC (10, 70, 500, 2000 kDa)
Lucifer Yellow
siRNA
Morpholino oligomer
Fluorescent miRNA
pre-miR-132/ anti-miR-132
GFP (protein)
Caspase 3
HMG-B1 Protein

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ADVANTAGES OF GNOME LASER TRANSFECTION

- High efficiency and cell viability
- Spatially highly confined, physical mechanism (tens of nm)
  - minimal impact on cell behavior
  - transferability between different cell types
- Independent of cell type and molecule
- Fully automated setup

- Selective cell manipulation
  - Spatially selective
  - Cell type selective

→ We are looking for partners with screening applications and for method development

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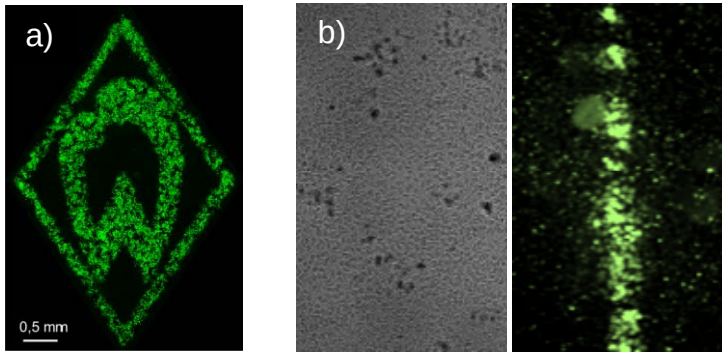
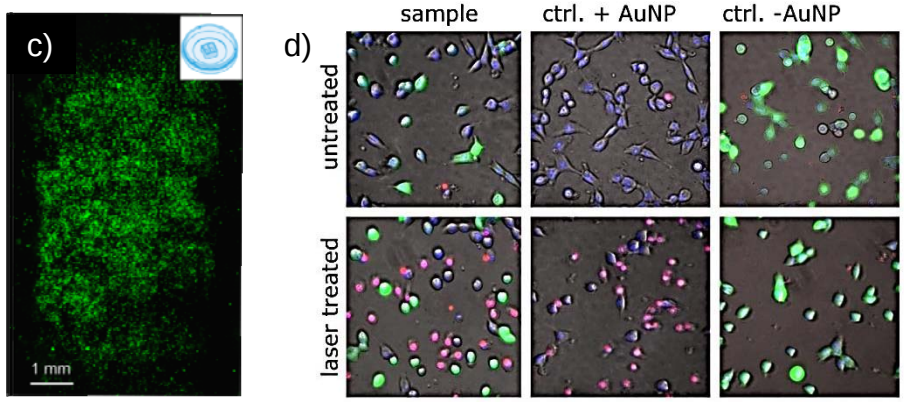
SPATIALLY SELECTIVE CELL MANIPULATION

Selective laser treatment



Targeted irradiation by
applying a) shadow masks or
b) selective scan patterns.

Selective AuNP binding



Targeted labeling with AuNP by
c) spatial selective incubation
or d) targeted pre-incubation.

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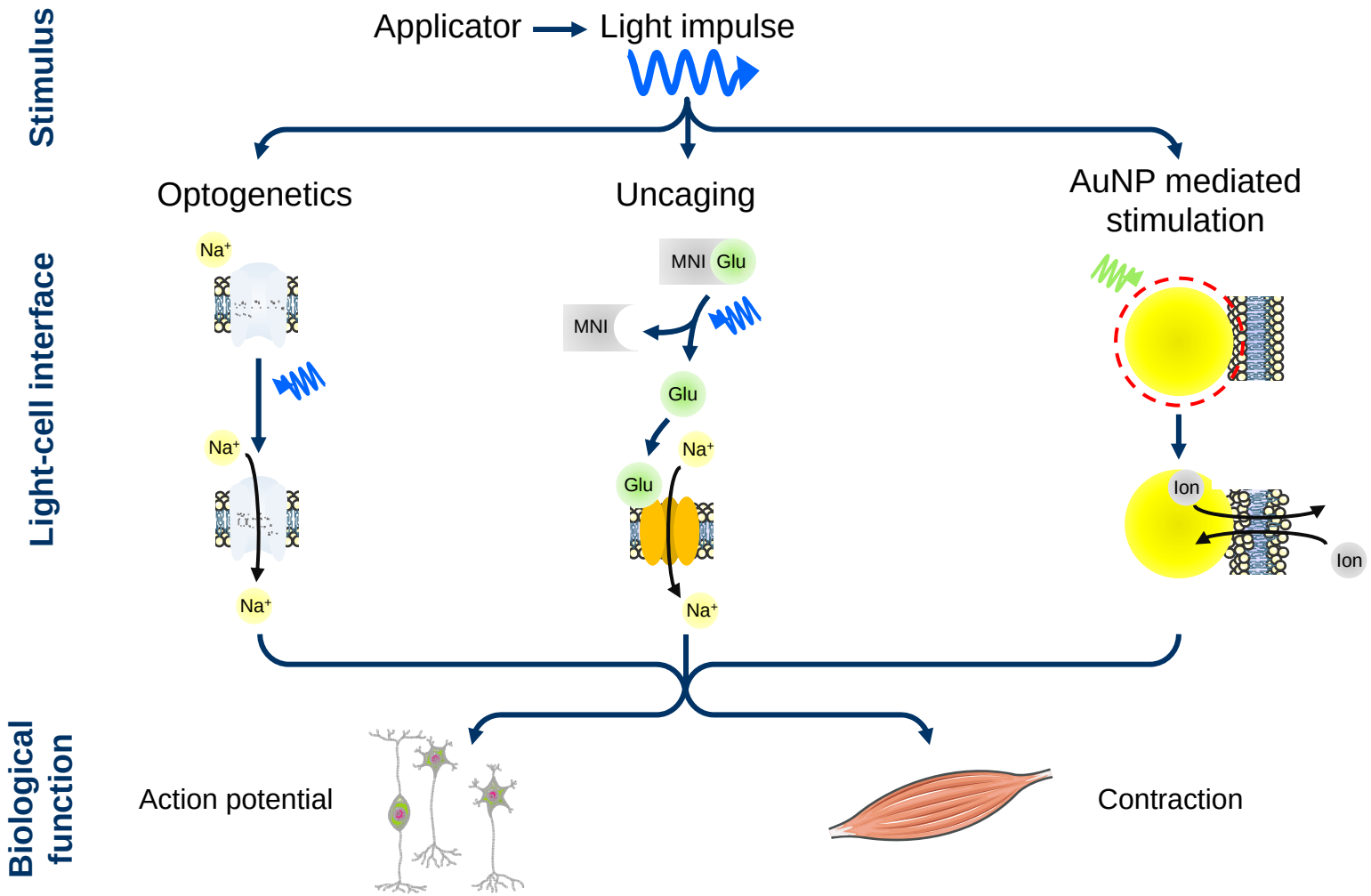
ROUTES OF OPTICAL CELL STIMULATION



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THANK YOU FOR YOUR ATTENTION!

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