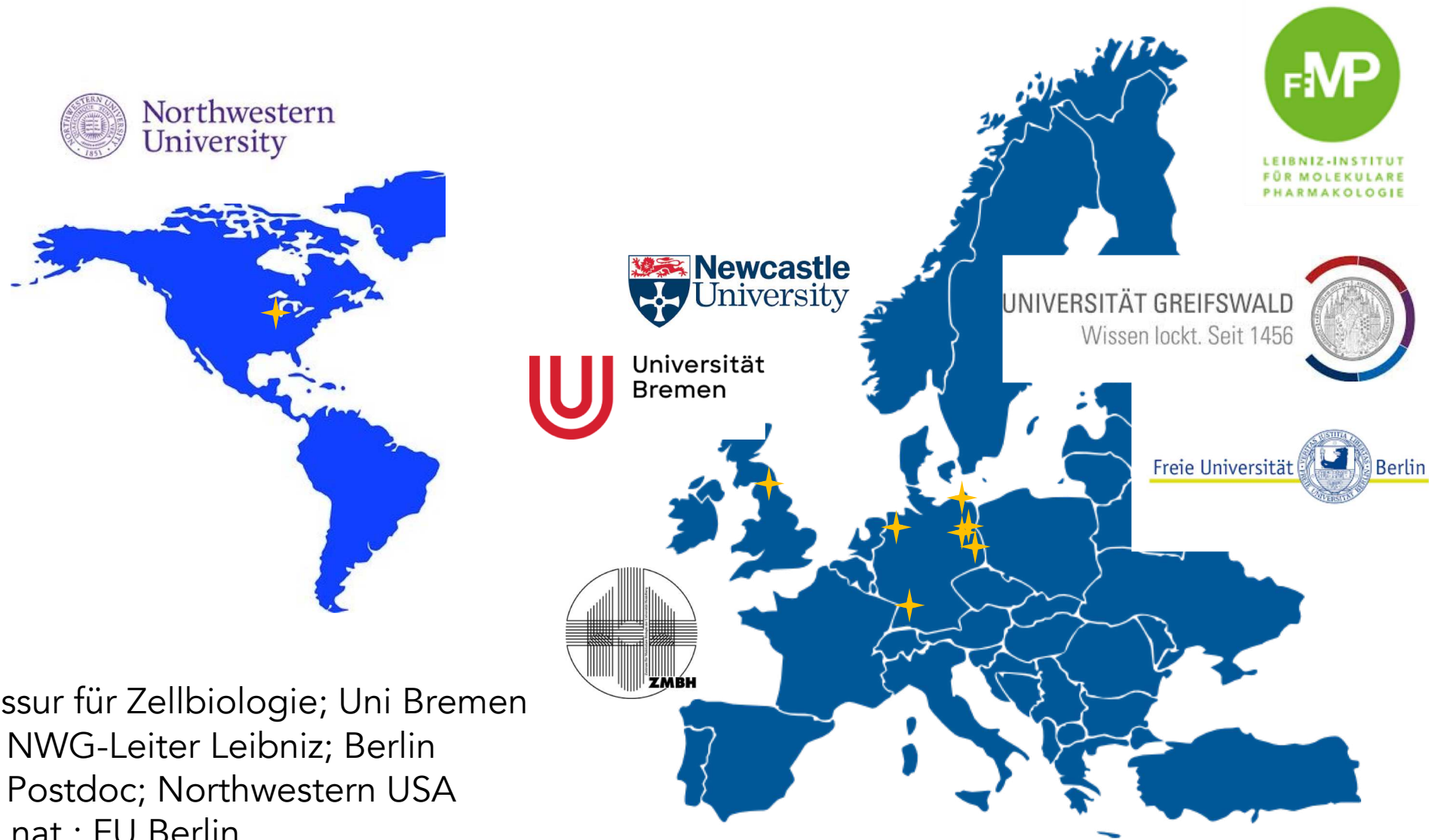


# Wie Protein-Fehlfaltungen zu neurodegenerativen Krankheiten führen können

Janine Kirstein

Professorin für Zellbiologie

# Geographischer CV



 Northwestern University

  
LEIBNIZ-INSTITUT  
FÜR MOLEKULARE  
PHARMAKOLOGIE

 Newcastle University

 Universität Bremen

UNIVERSITÄT GREIFSWALD  
Wissen lockt. Seit 1456



Freie Universität  Berlin



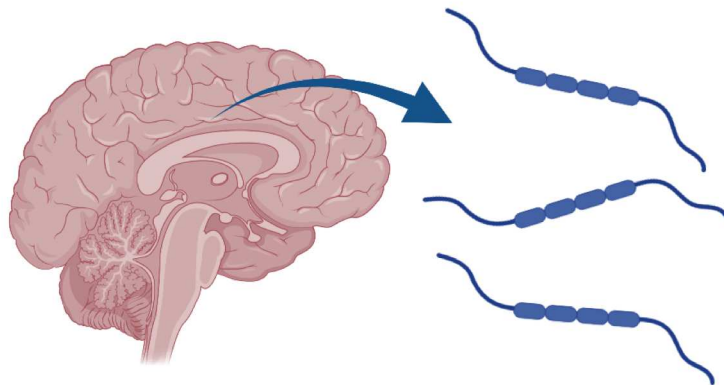
2019 – Professur für Zellbiologie; Uni Bremen  
2013 – 2019 NWG-Leiter Leibniz; Berlin  
2007 – 2013 Postdoc; Northwestern USA  
2007 Dr. rer. nat.; FU Berlin  
2003 Diplom; Uni Greifswald

# Neurodegenerative Erkrankungen zeichnen sich durch Proteinaggregation aus

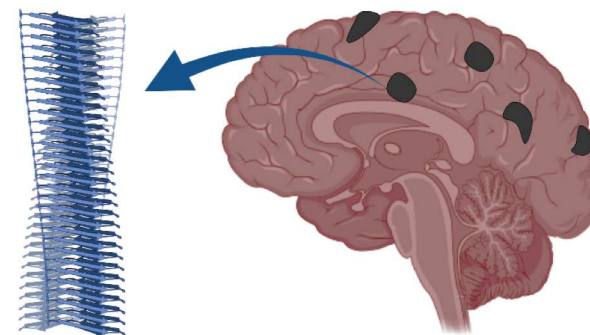
Was passiert, wenn wir altern?



Gesundes Gehirn



Gehirn eines Patienten  
(Alzheimer / Parkinson / Huntington)



# Proteinaggregation weitet sich über das gesamte Gehirn aus

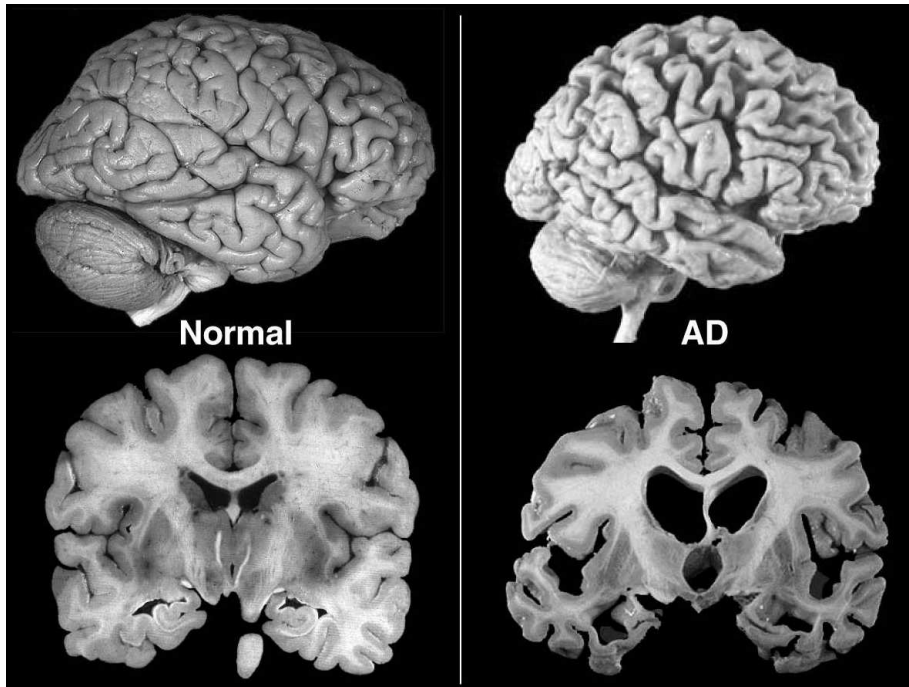
Alzheimer Erkrankung

Parkinson

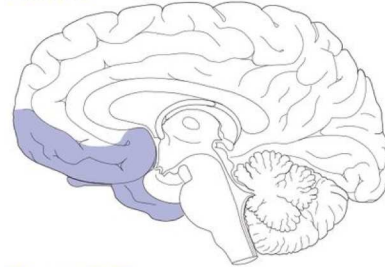
$A\beta$

tau

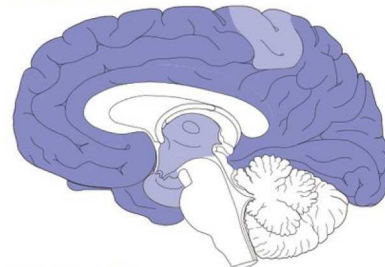
$\alpha$ -synuclein



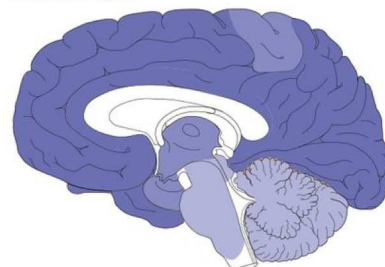
Phase 1



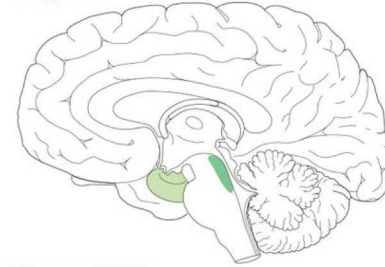
Phases 2/3



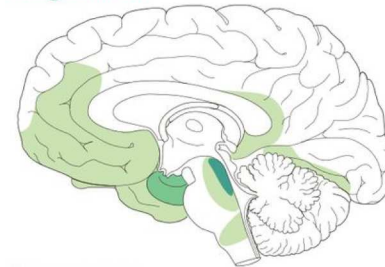
Phases 4/5



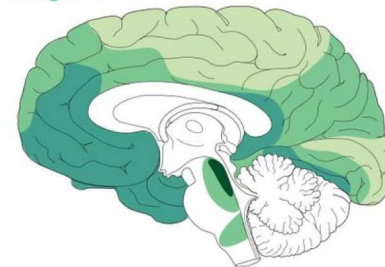
Stages I-II



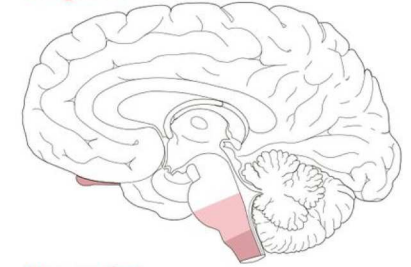
Stages III-IV



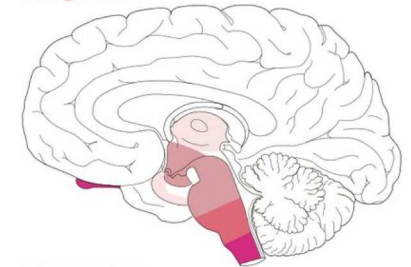
Stages V-VI



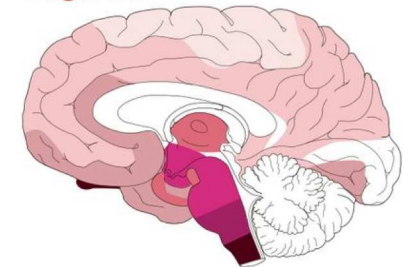
Stages 1-2



Stages 3-4

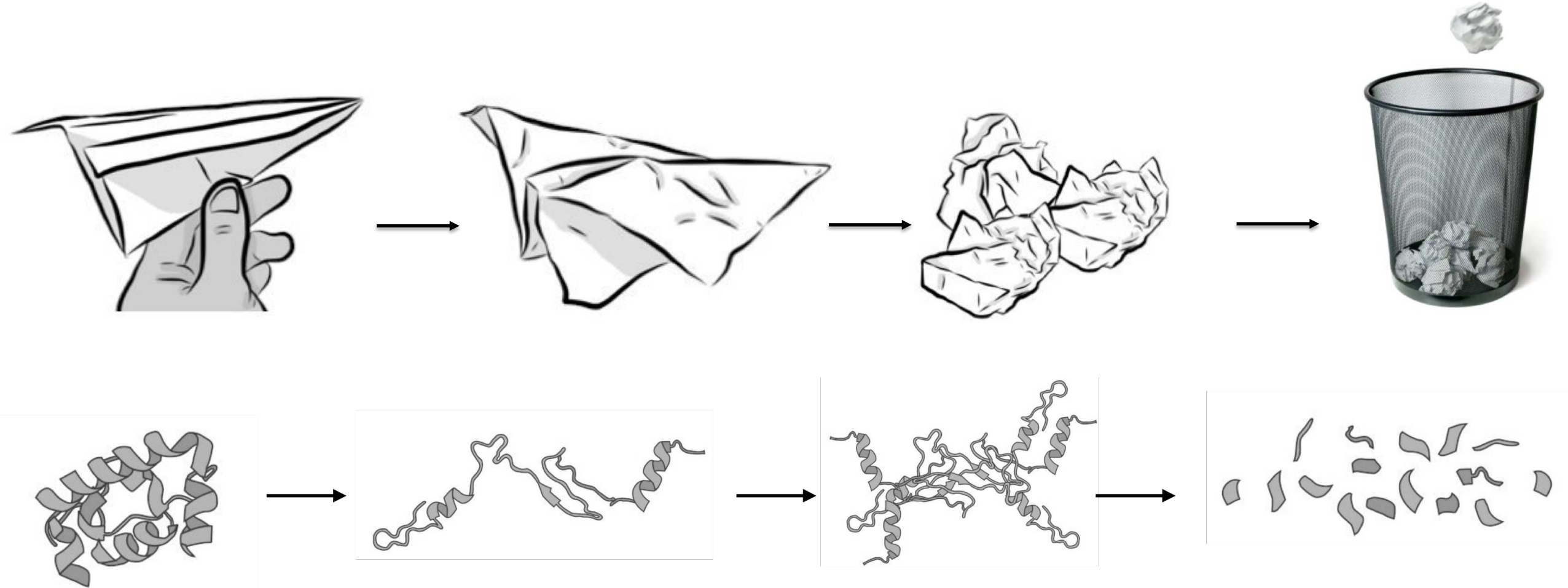


Stages 5-6

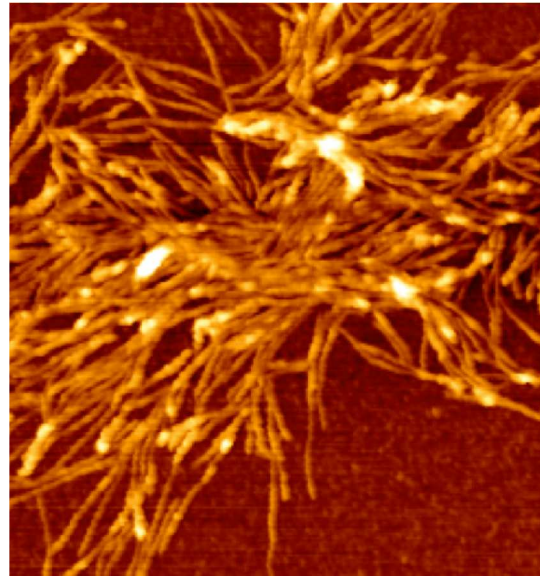
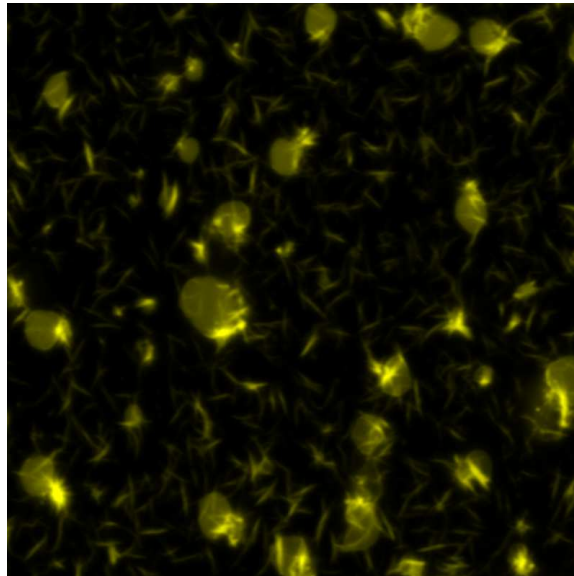
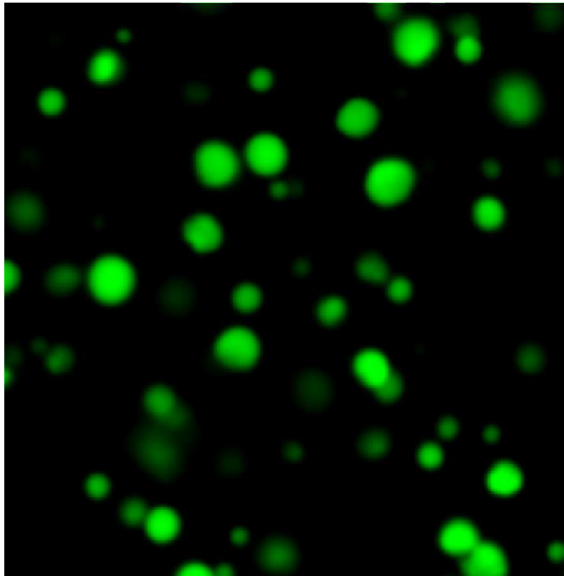
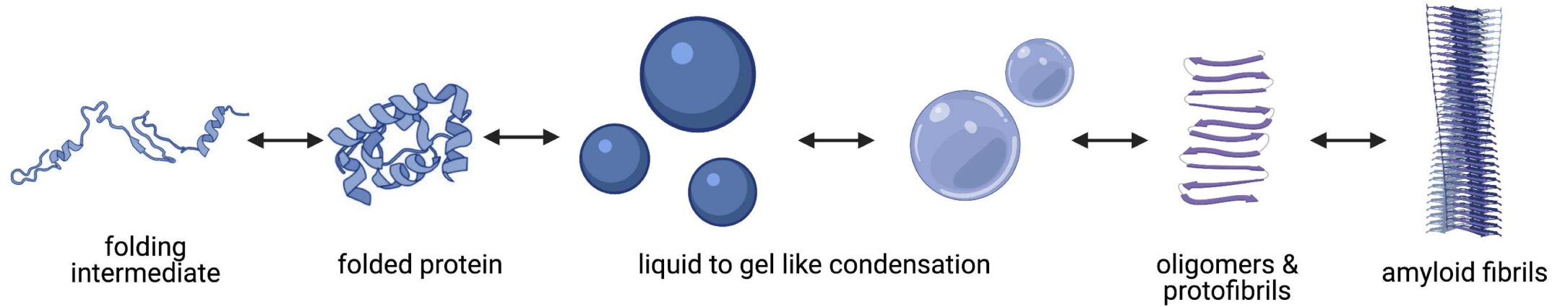


Das Problem sind also die Proteine....

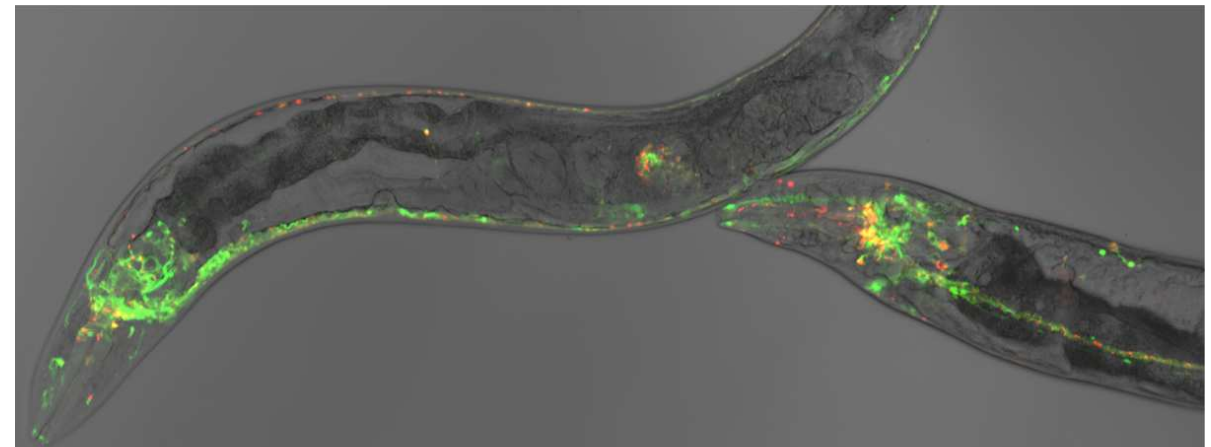
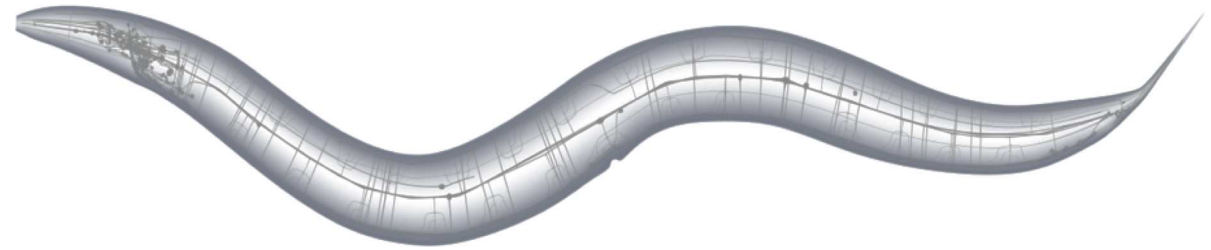
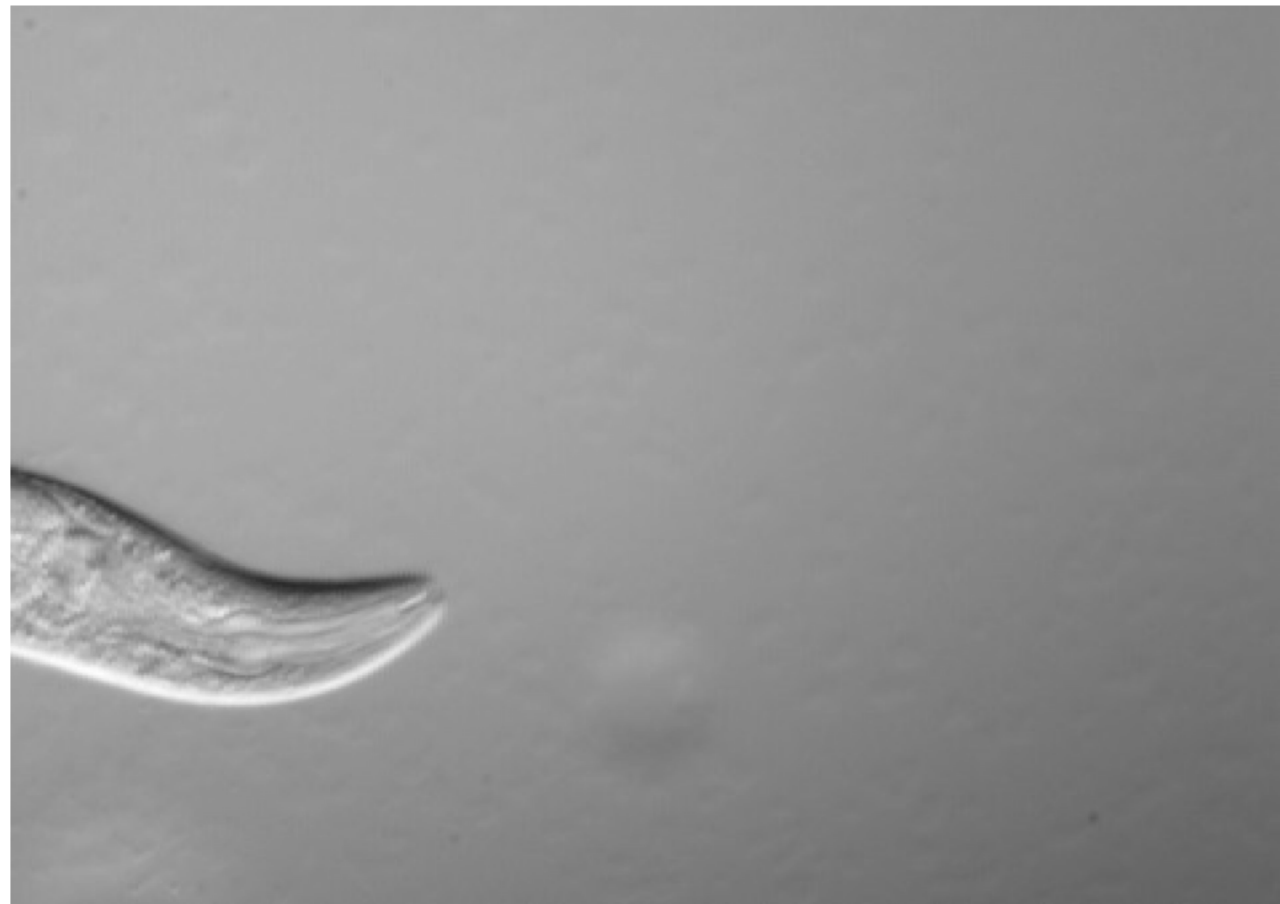
... denn die müssen korrekt gefaltet werden



# Wenn Proteine fehlfalten, können sie toxische Fibrillen ausbilden

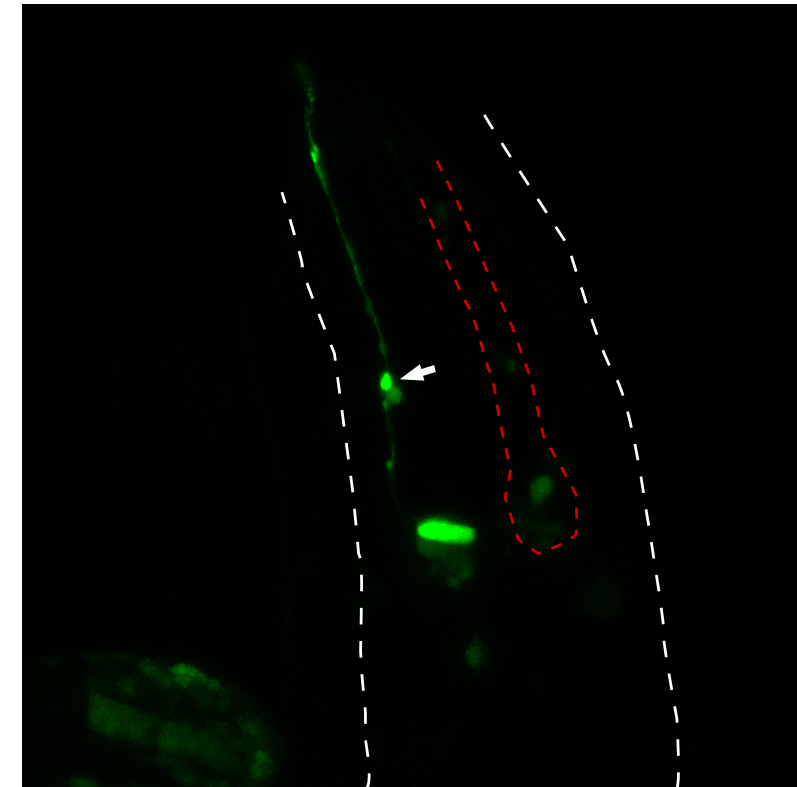
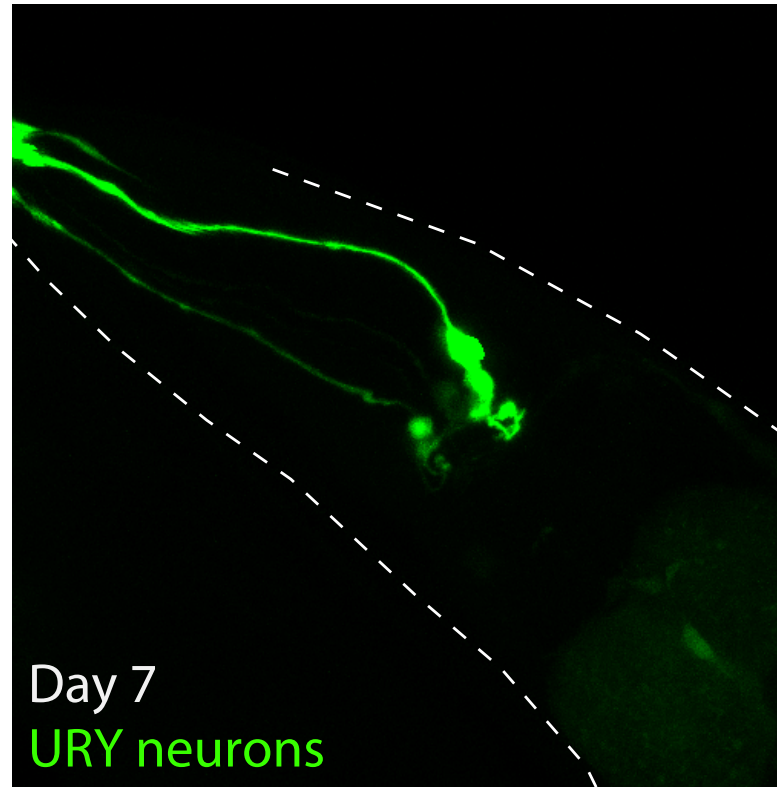
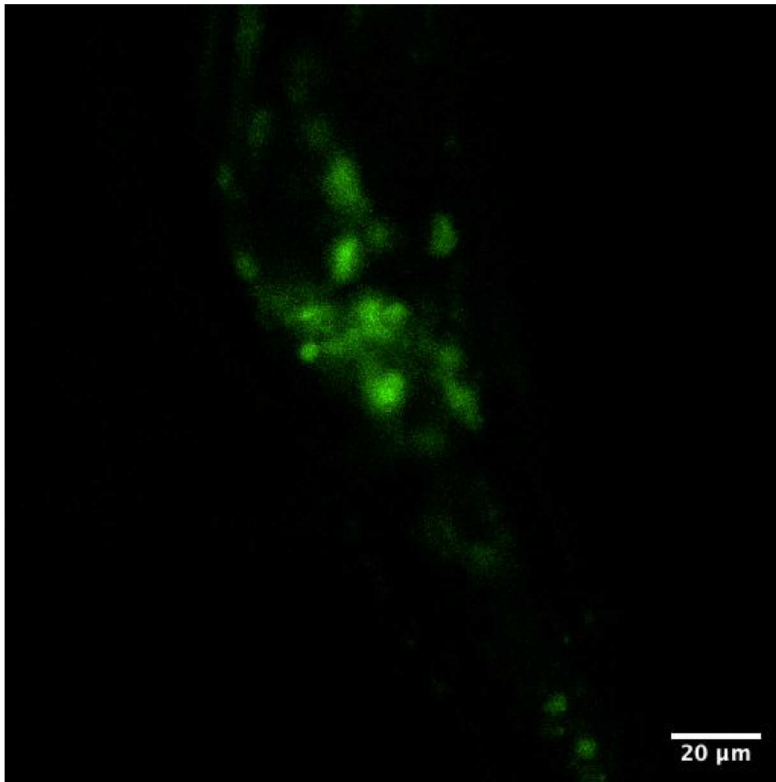


# Nematoden als Tiermodell



# Proteinaggregate führen zum Verlust neuronaler Aktivität und Neurodegeneration

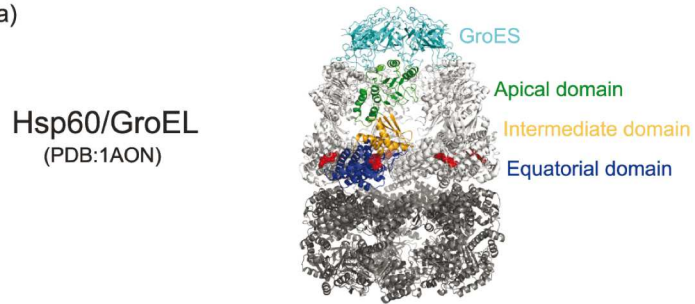
Calciumsensor



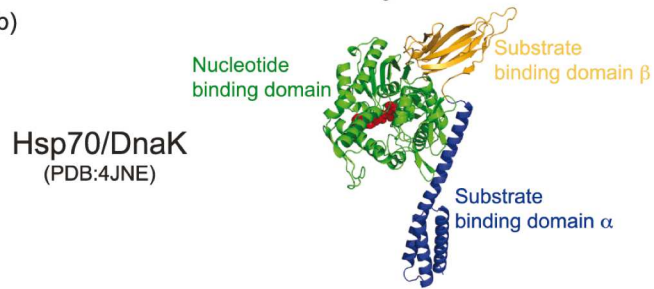


# Molekulare Chaperone können die Aggregation von Proteinen verhindern

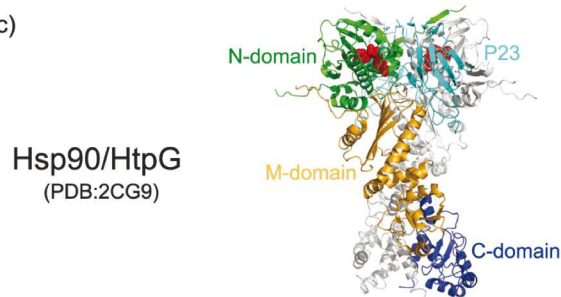
(a)



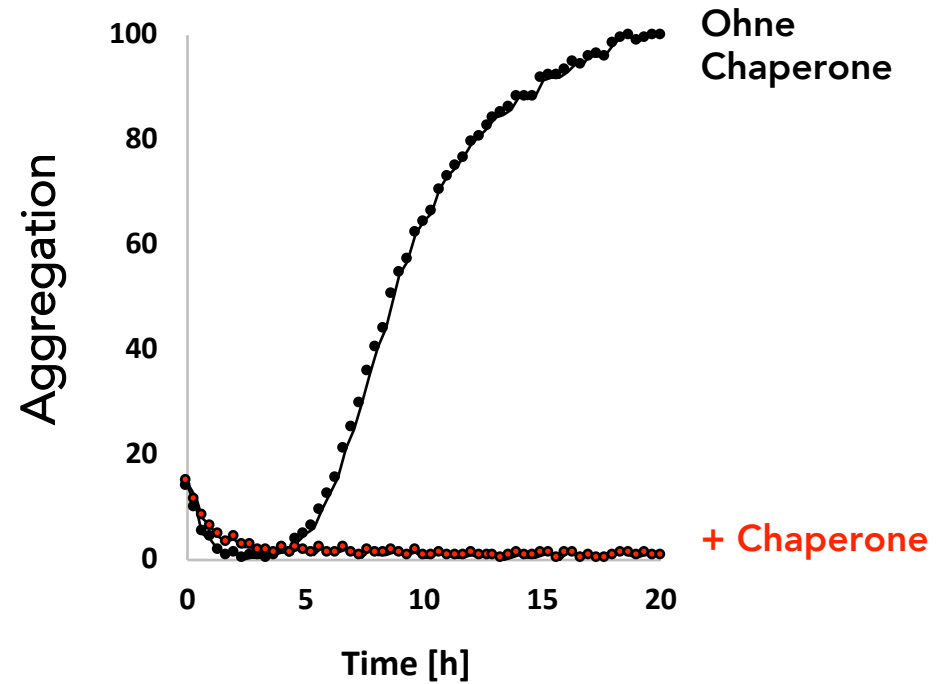
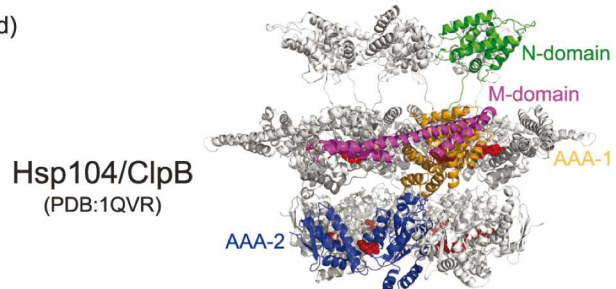
(b)



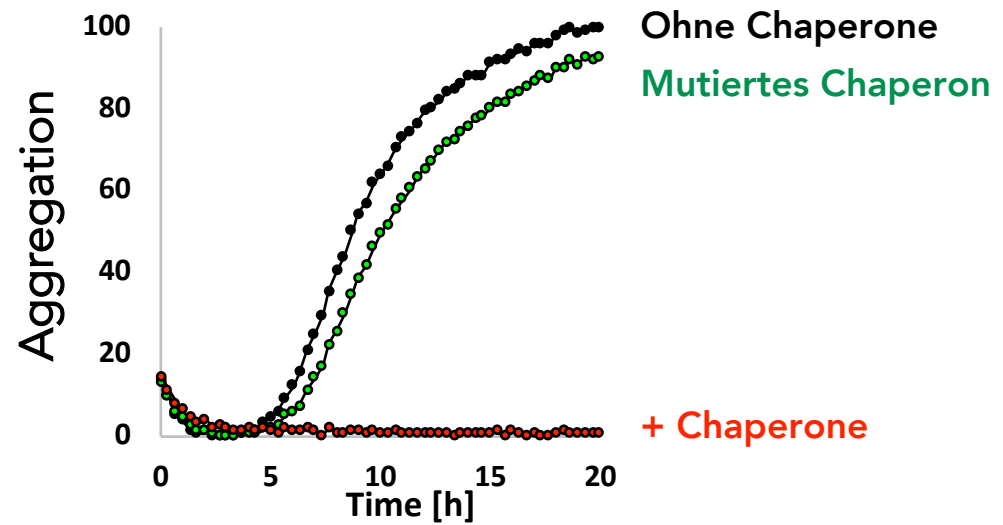
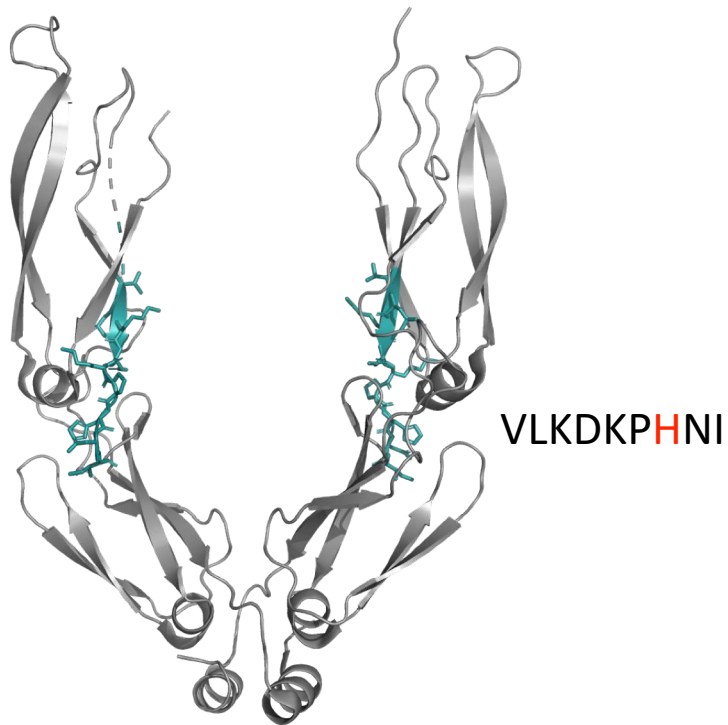
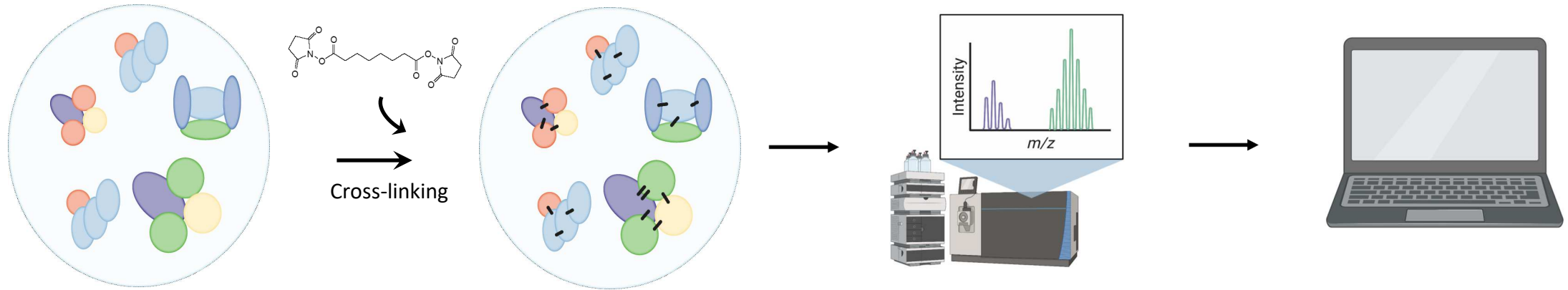
(c)



(d)

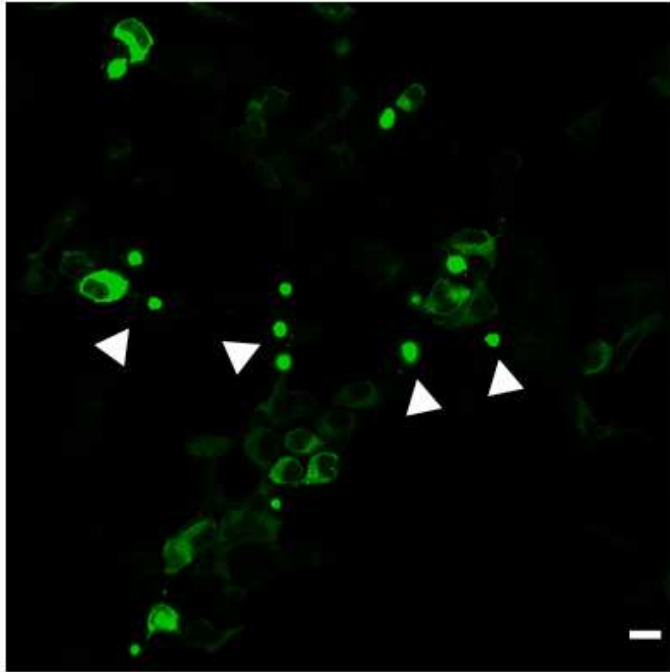


# Wie erkennen Chaperone ihre Proteinsubstrate?

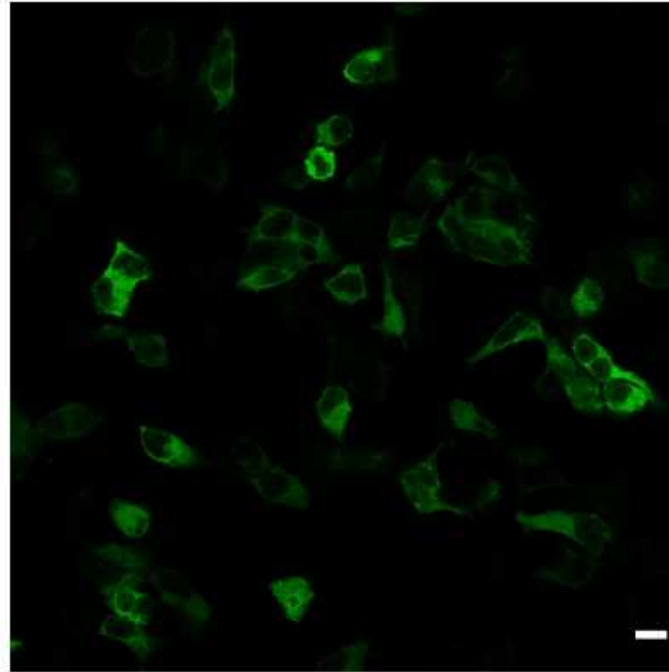


# Validierung in Zellen:

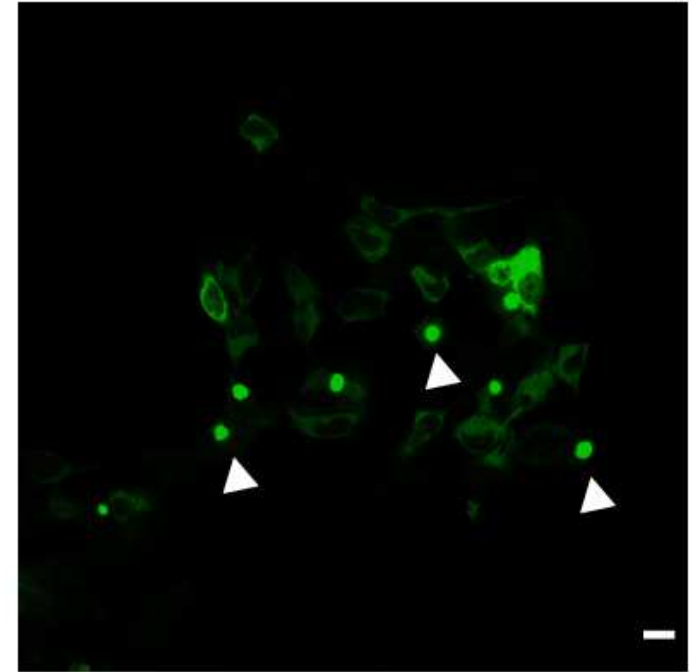
EV



DNAJB1<sup>wt</sup>



DNAJB1<sup>H244A</sup>



# Vielen Dank für Ihre Aufmerksamkeit



## AG Kirstein:

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