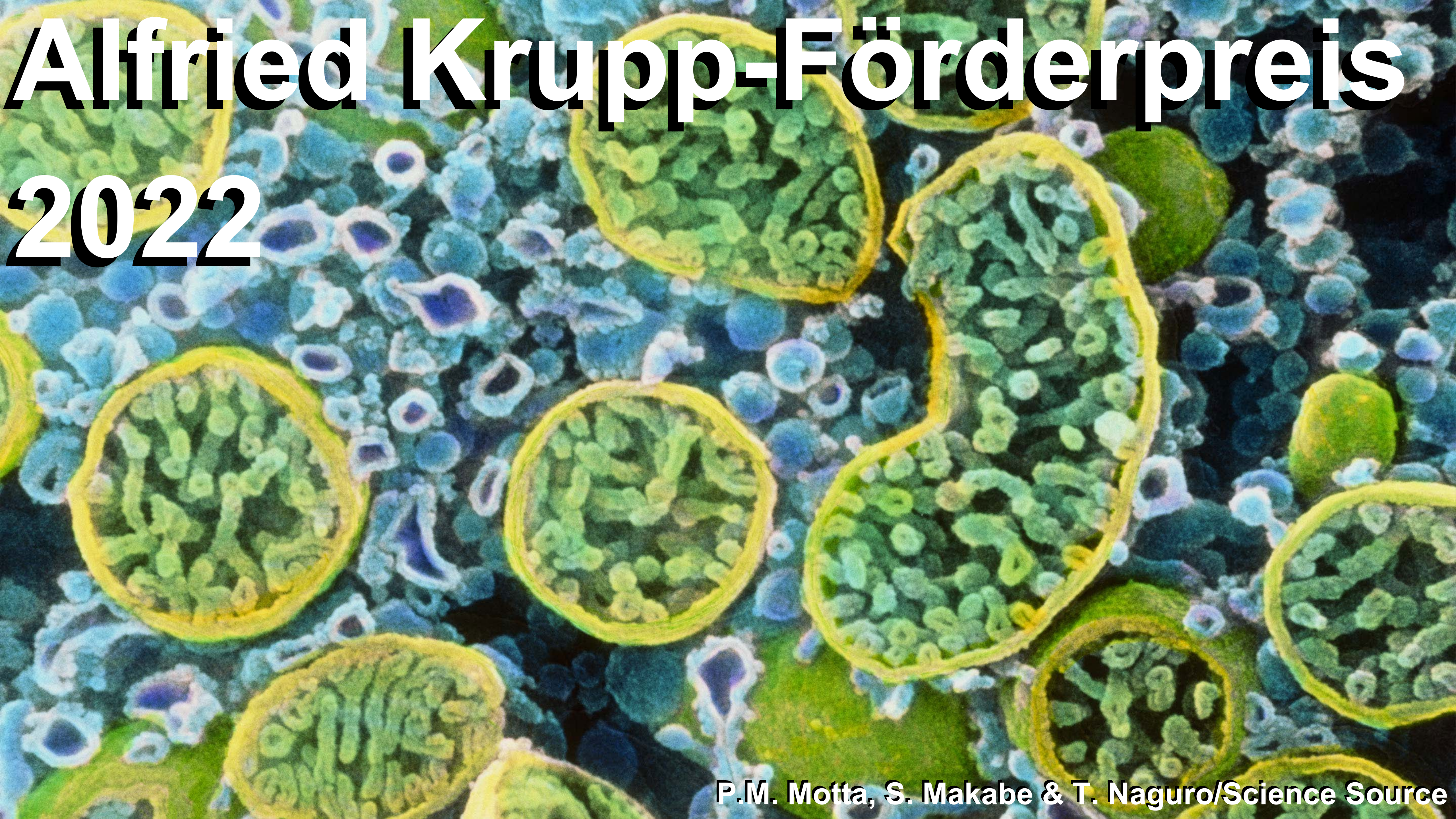


Alfried Krupp-Förderpreis

2022



P.M. Motta, S. Makabe & T. Naguro/Science Source

Lebenserwartung ab Geburt 1543 – 2019



Lifespan \neq healthspan

Des Stress des Alterns

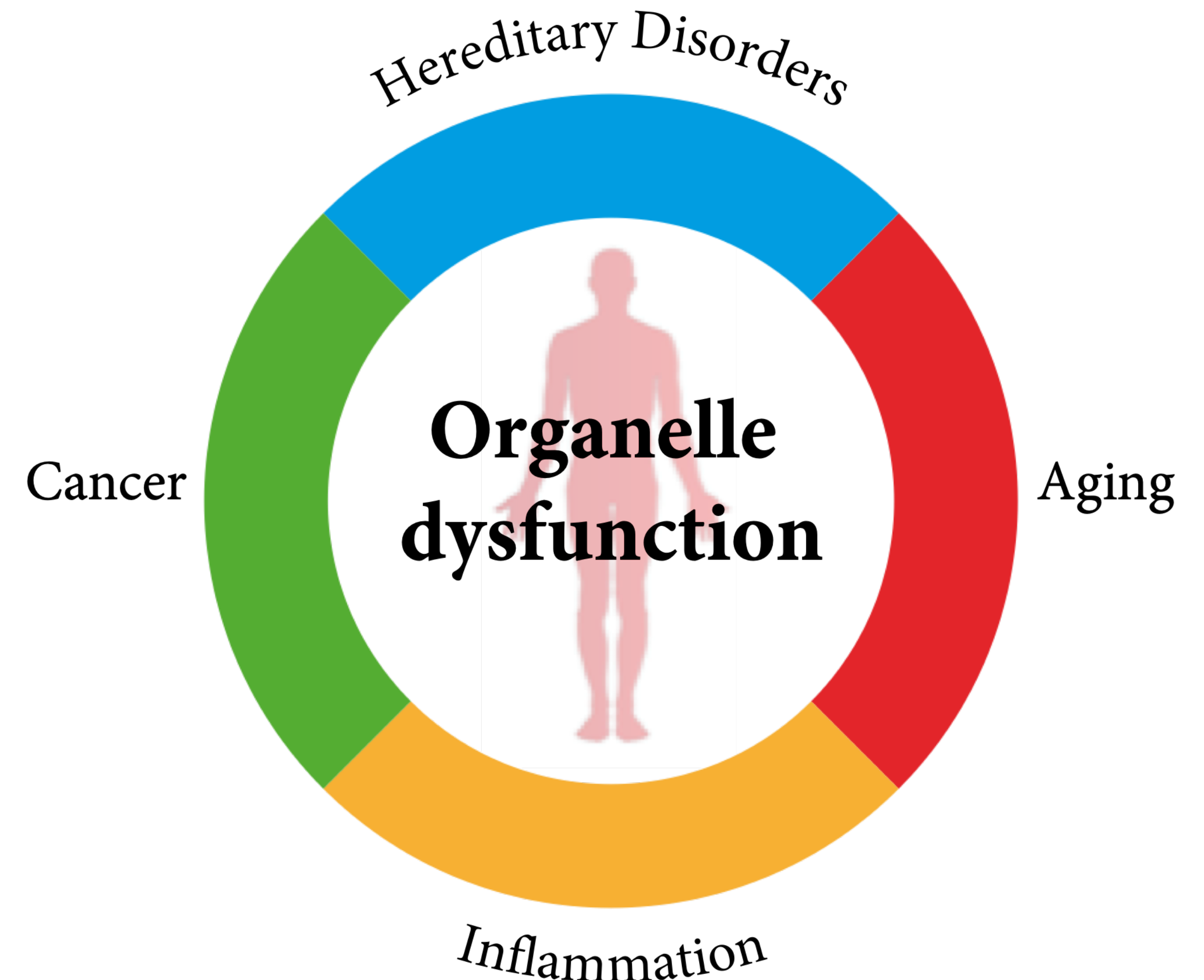
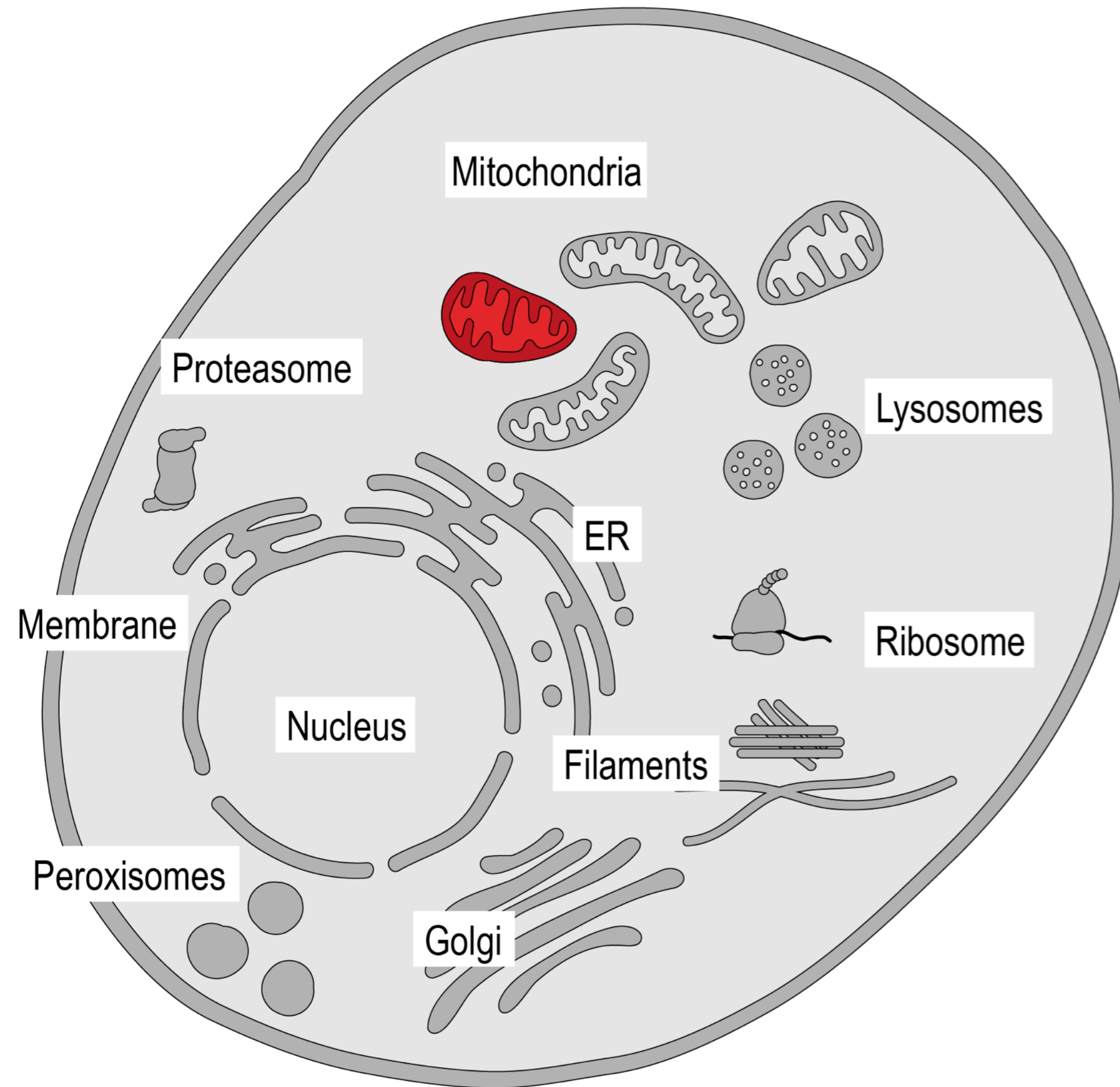


2009

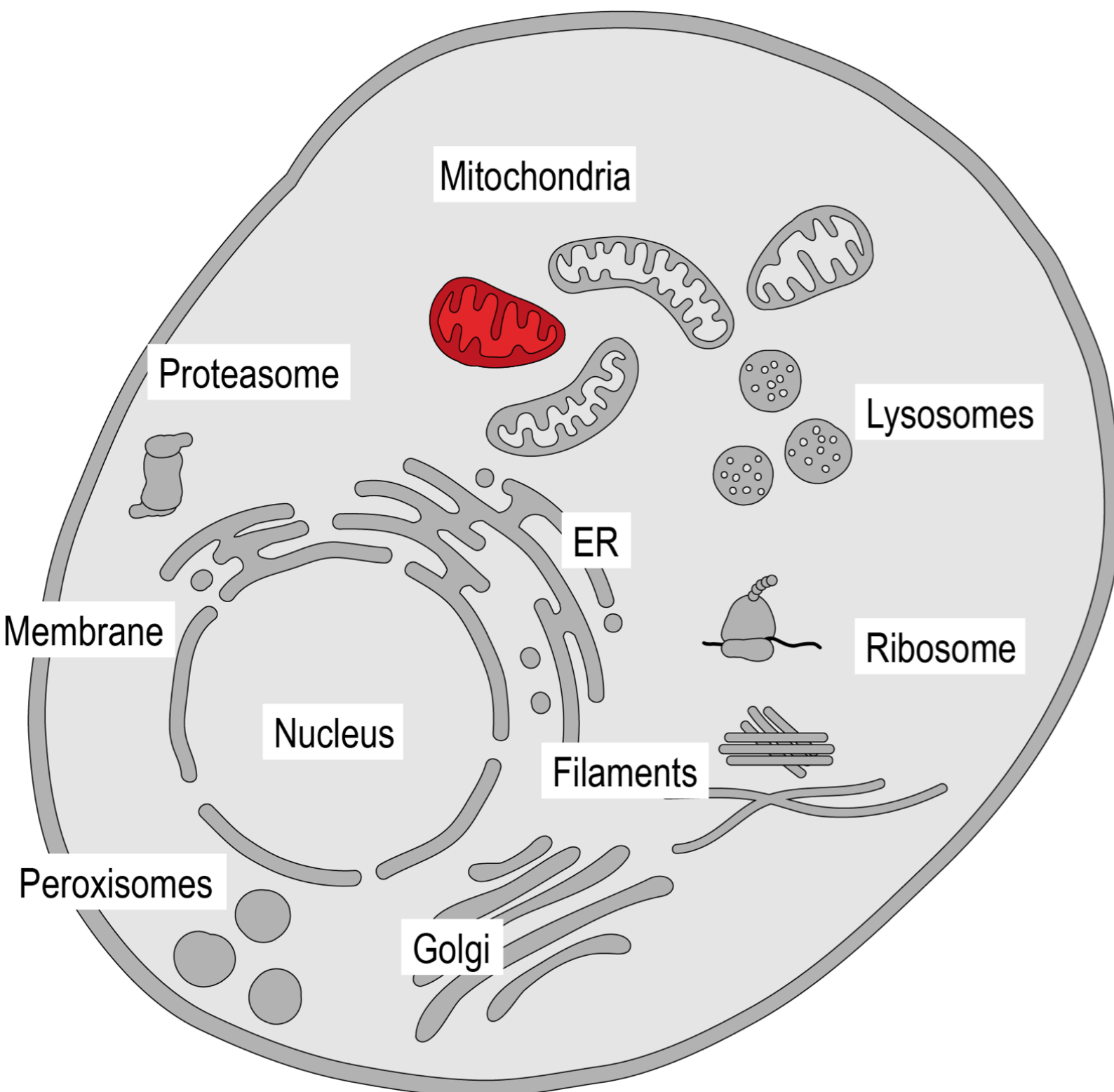


2016

Stress-induzierte Fehlfunktion zellulärer Maschinen

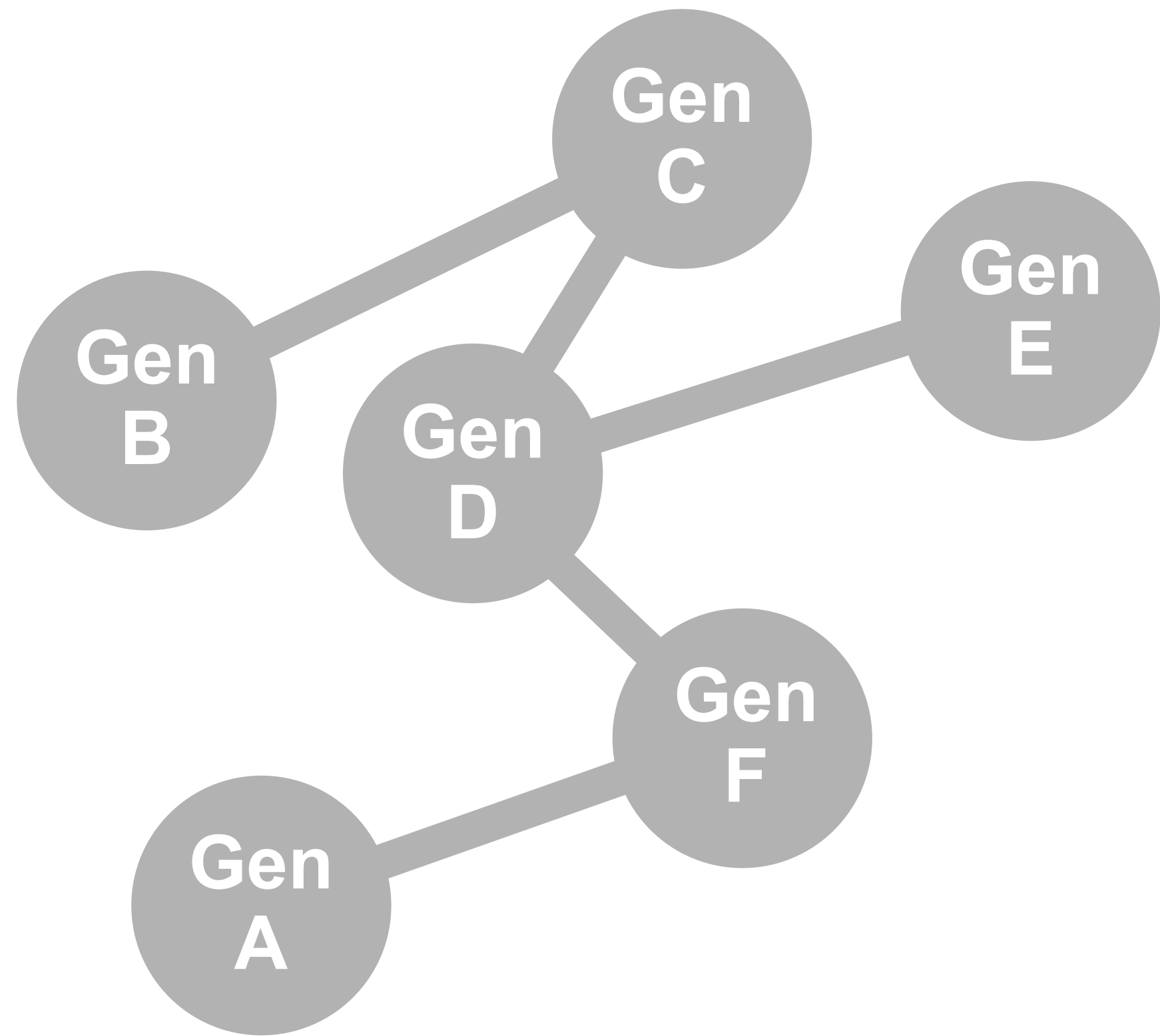


Entschlüsselung biologischer Prozesse durch Genetik



Vorwärtsgenetik

Reverse Genetik

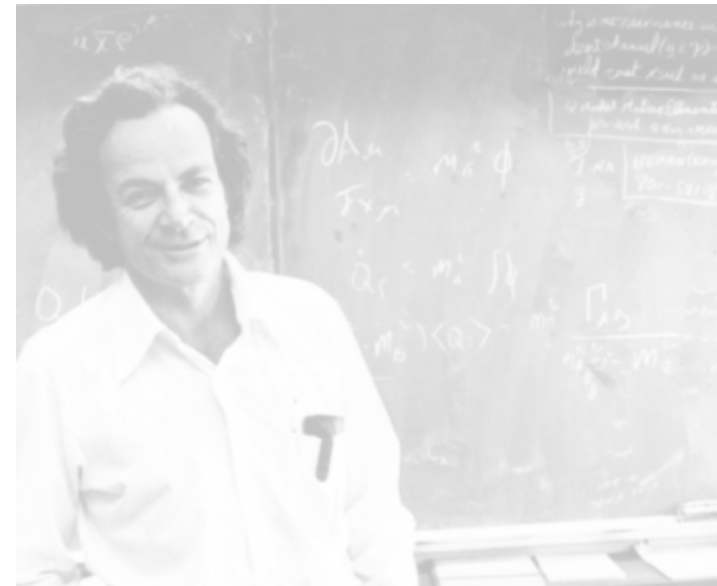


Merkmal (Phänotyp):
z.B. Zelle krank

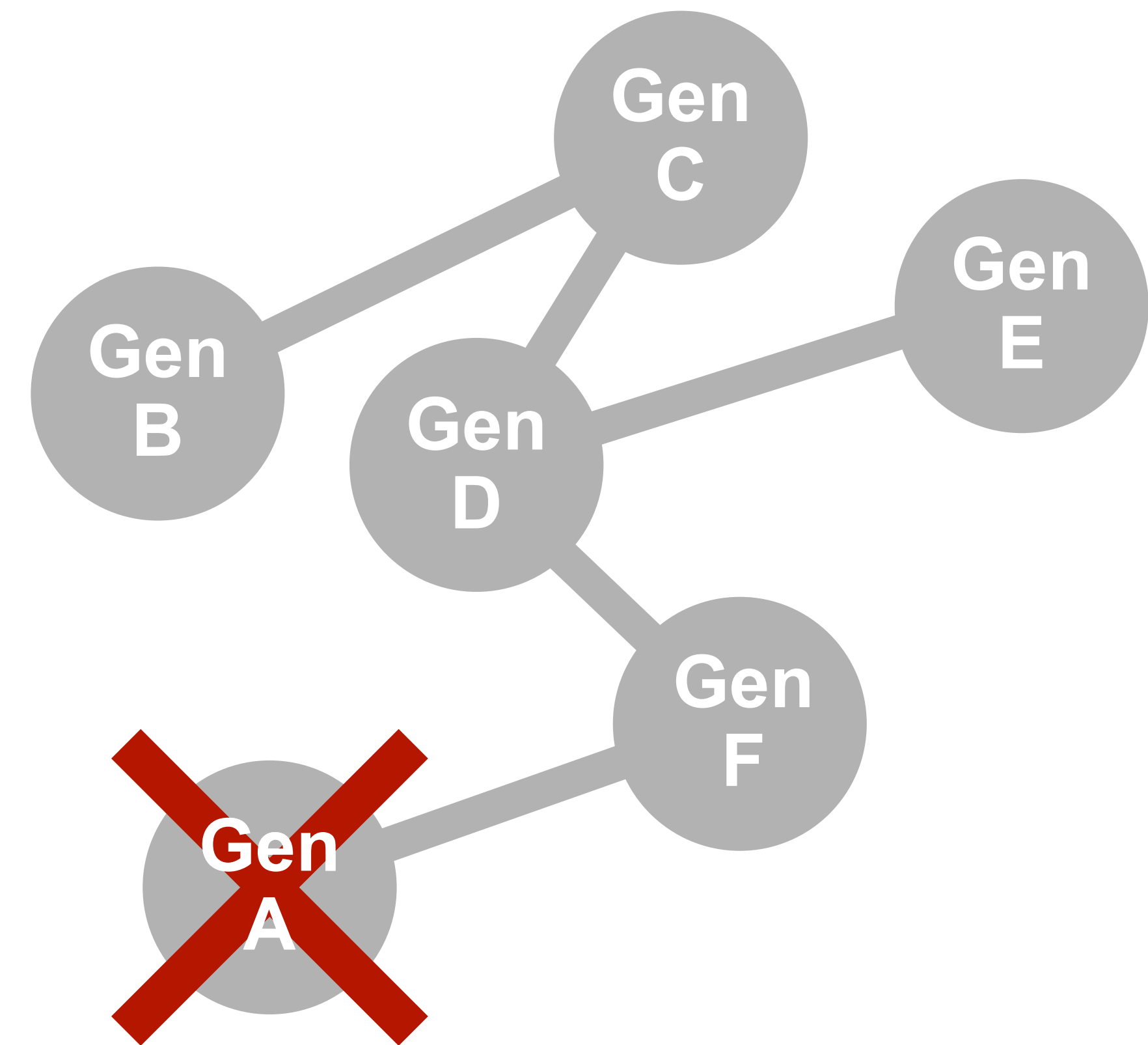
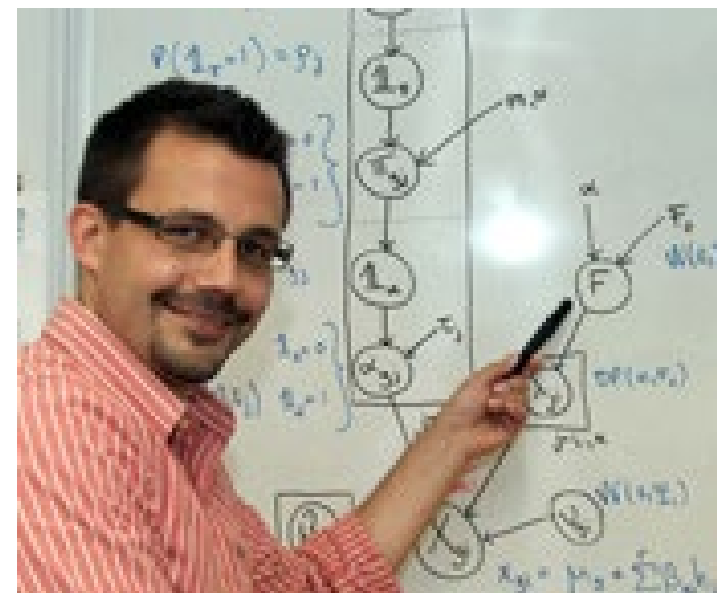
Genotyp:
z.B. Gen A mutiert

Entschlüsselung biologischer Prozesse durch Genetik

What I cannot create,
I do not understand
— Richard Feynman

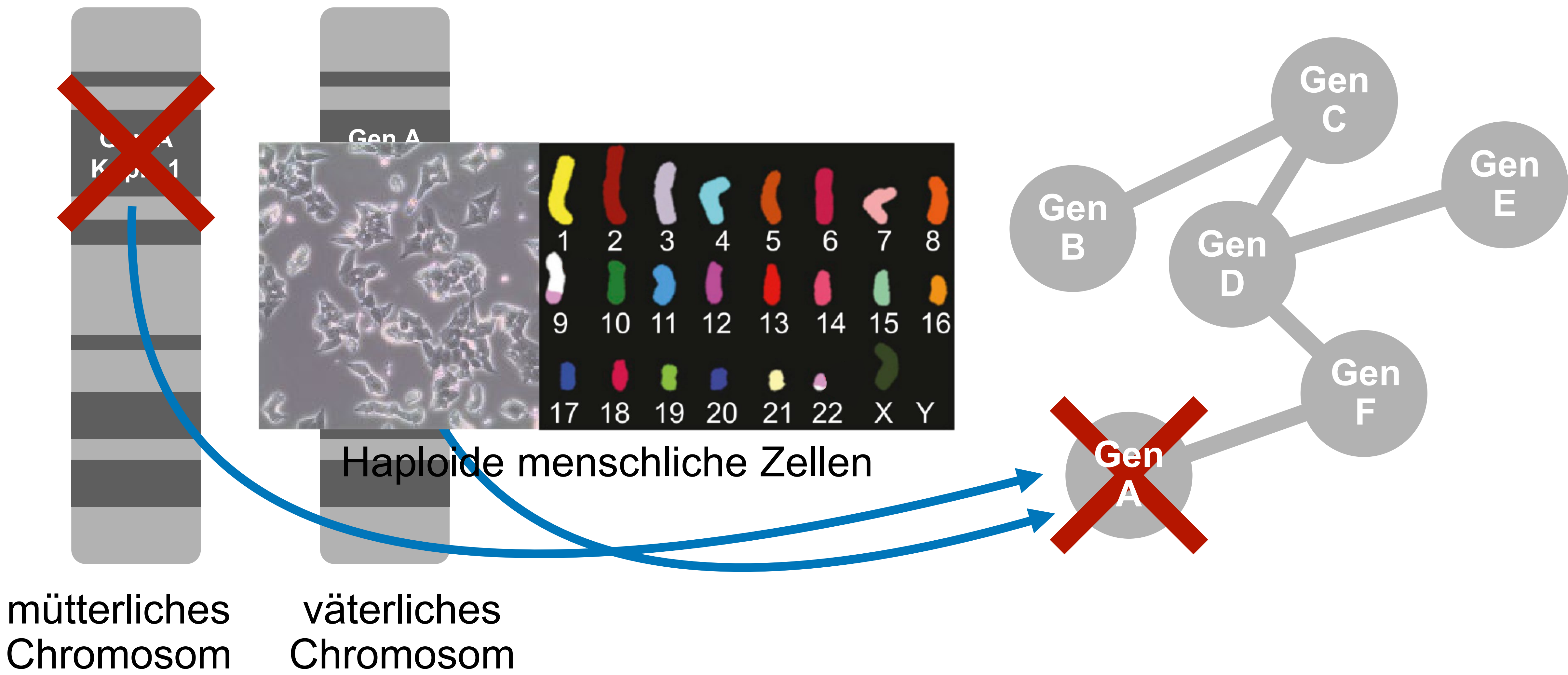


What I cannot **break**,
I do not understand
— Florian Markowetz

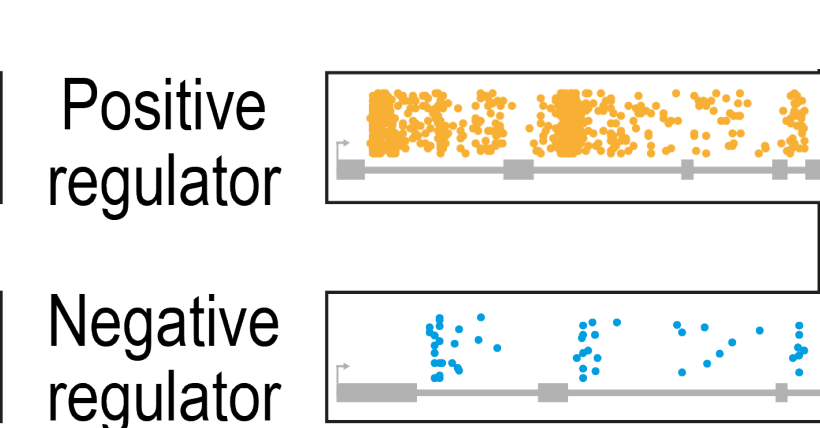
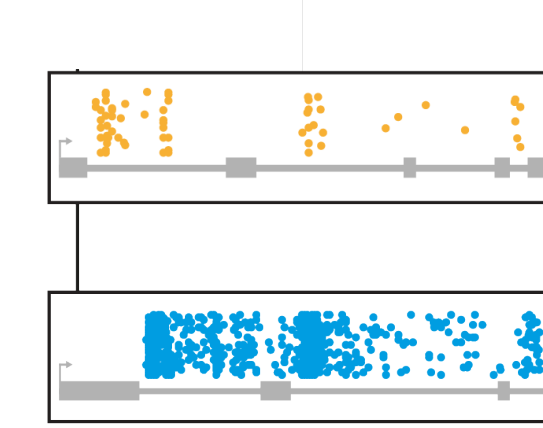
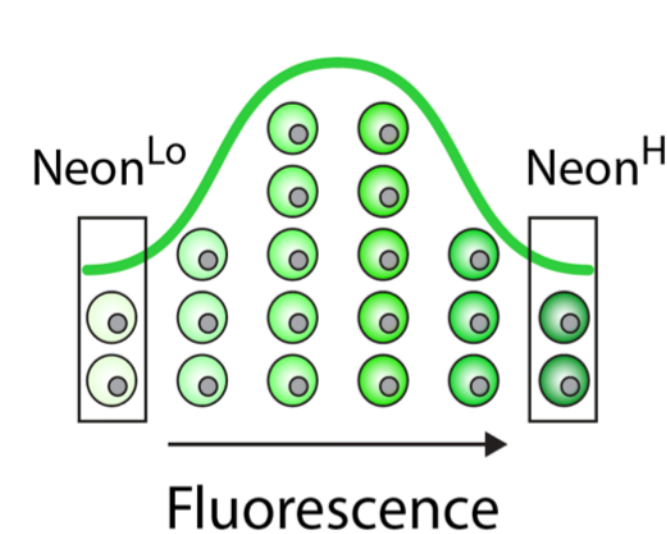
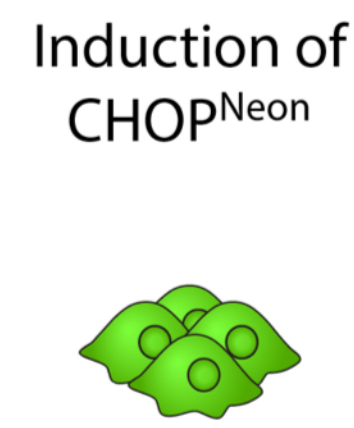
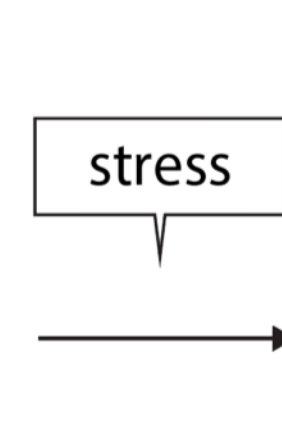
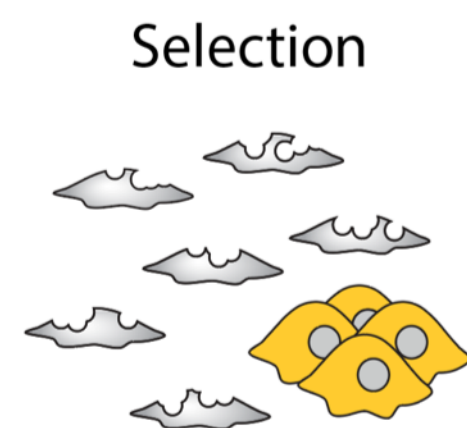
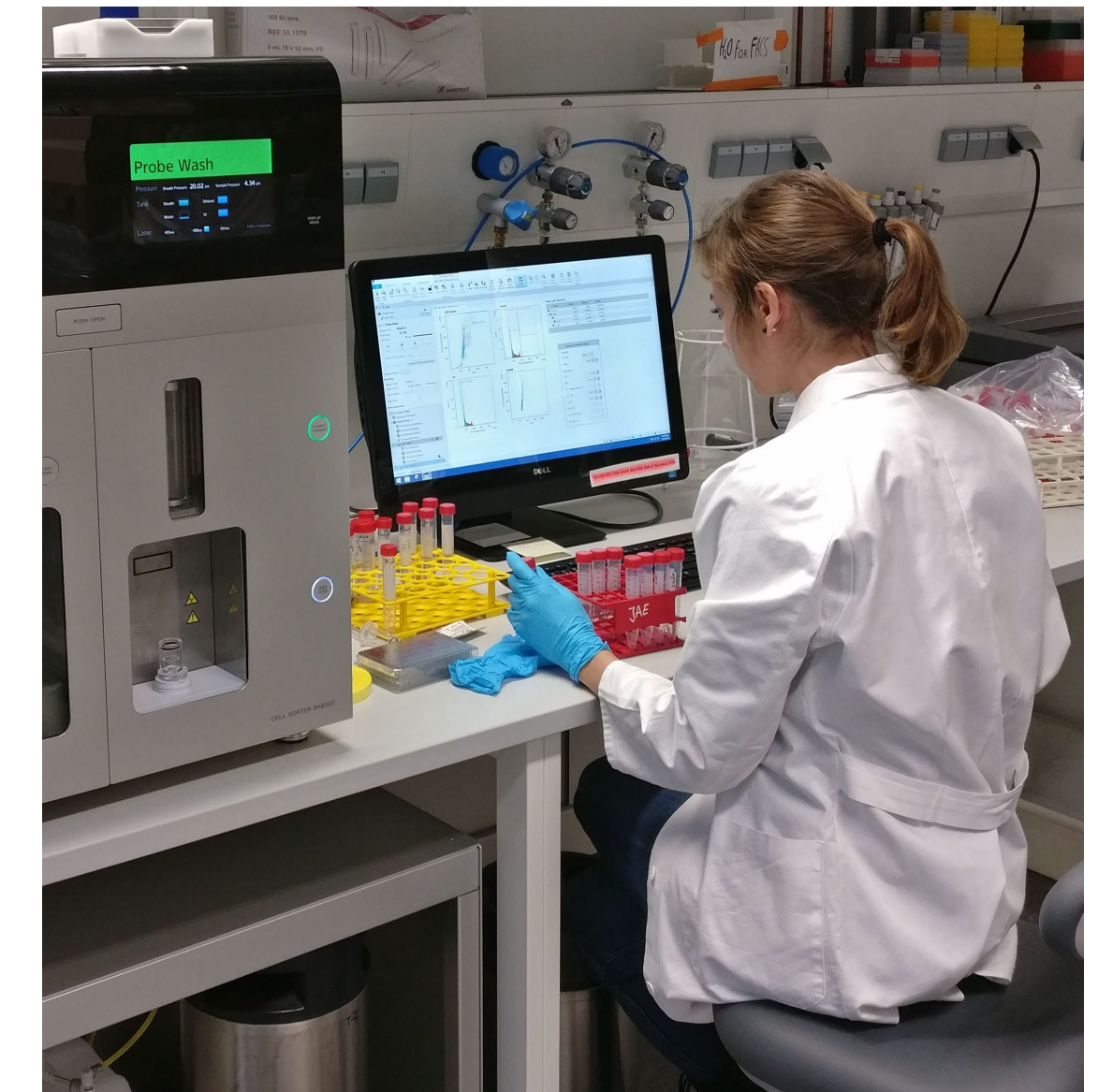
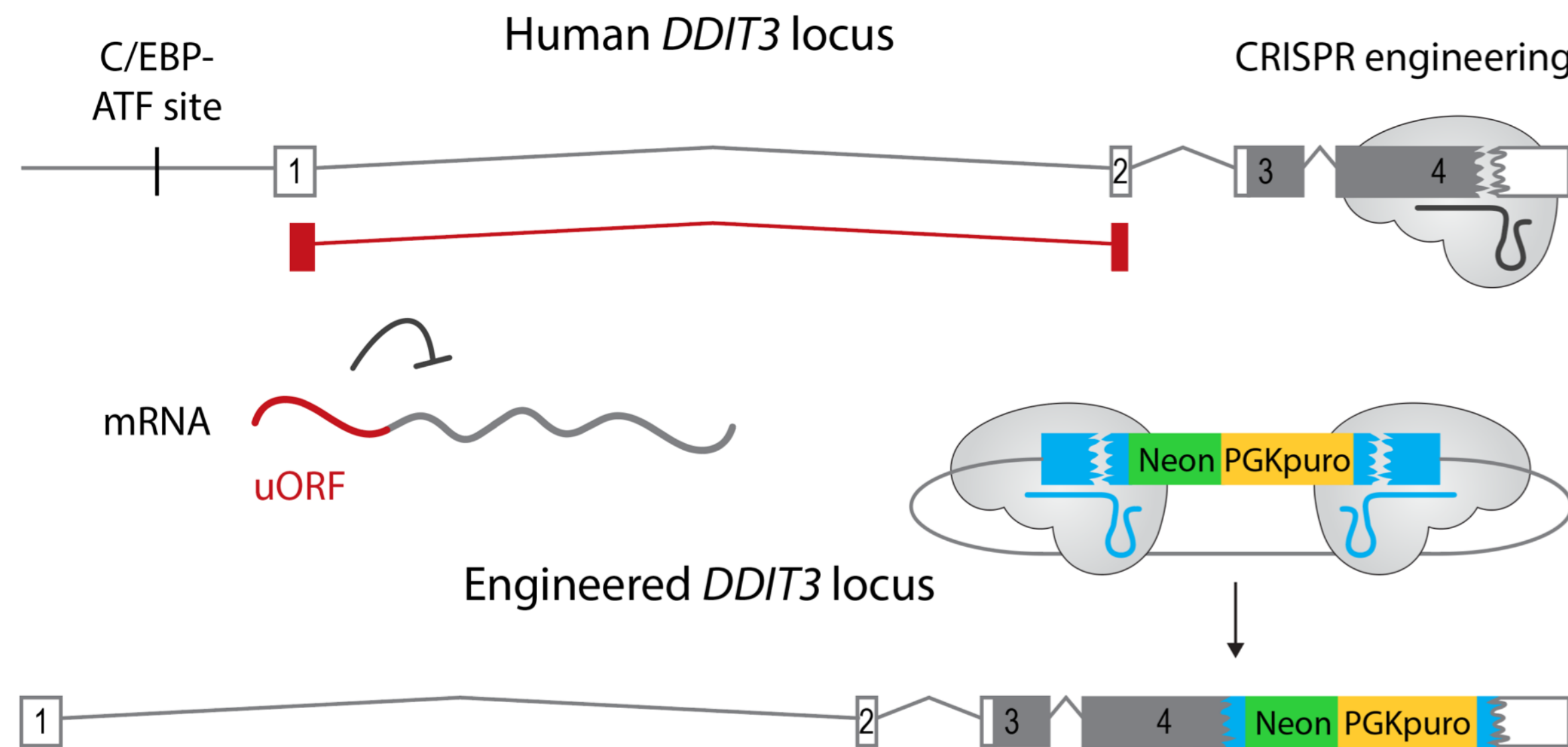
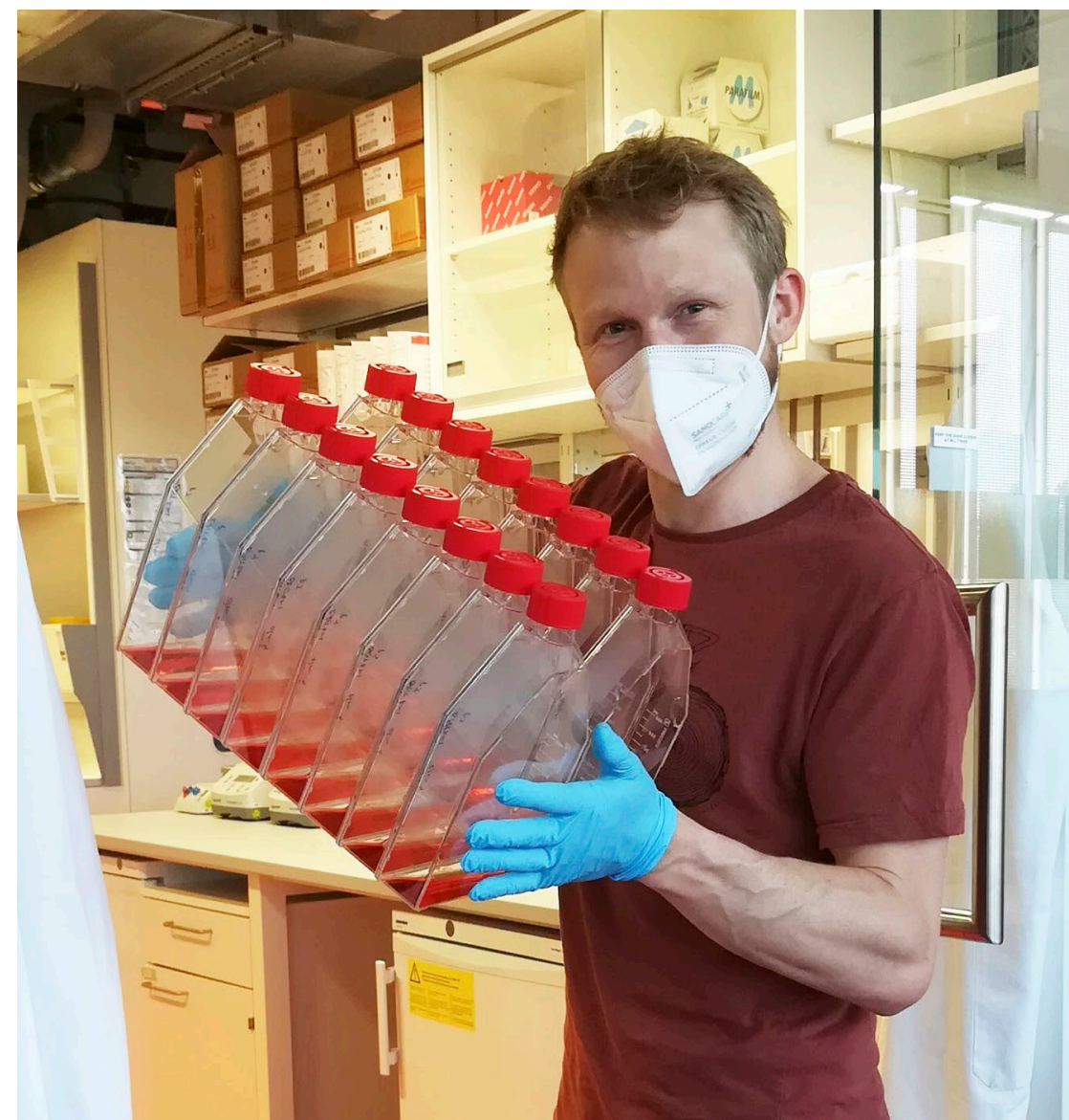
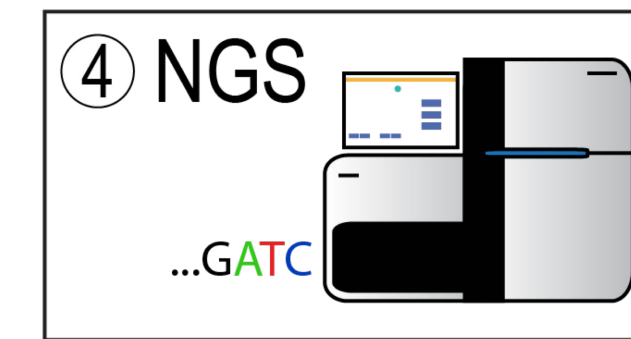
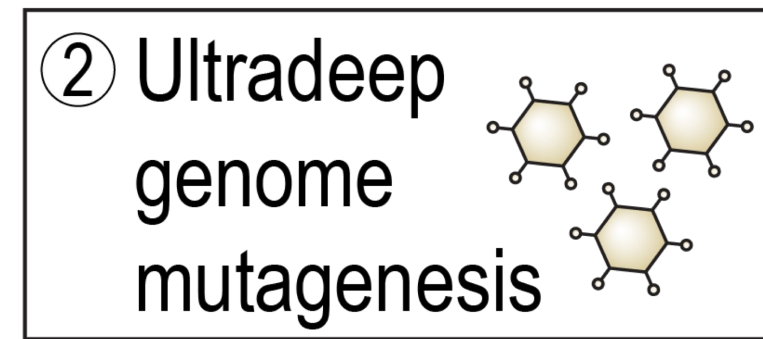
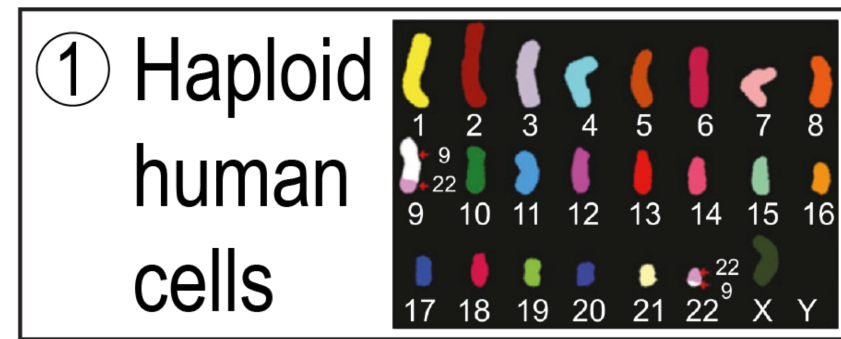


Merkmale: Zelle krank
Genotyp: Gen A mutiert?

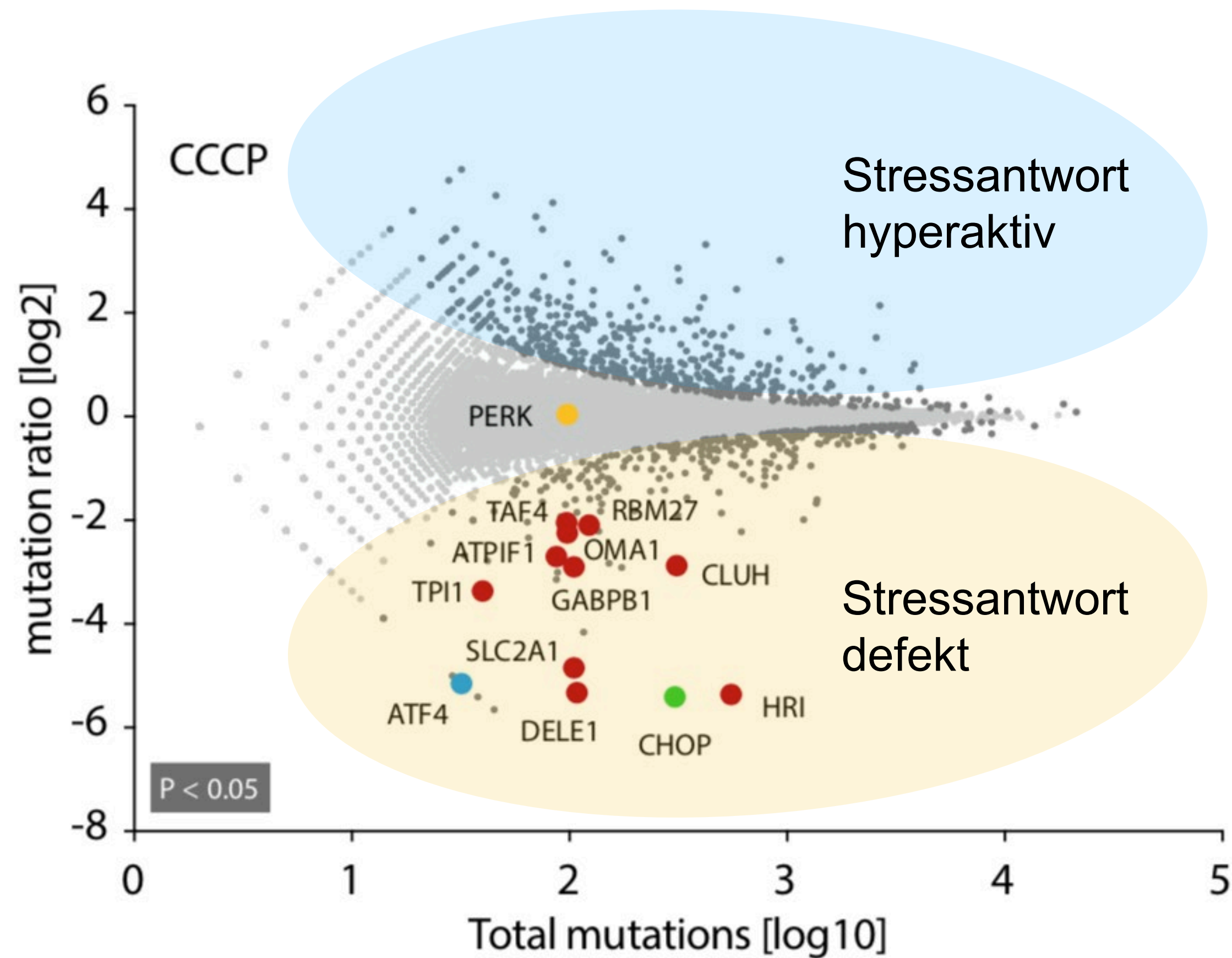
Der diploide Charakter menschlicher Zellen erschwert Vorwärtsgenetik



Haploider genetischer Screen zur Messung mitochondrialen Stresses



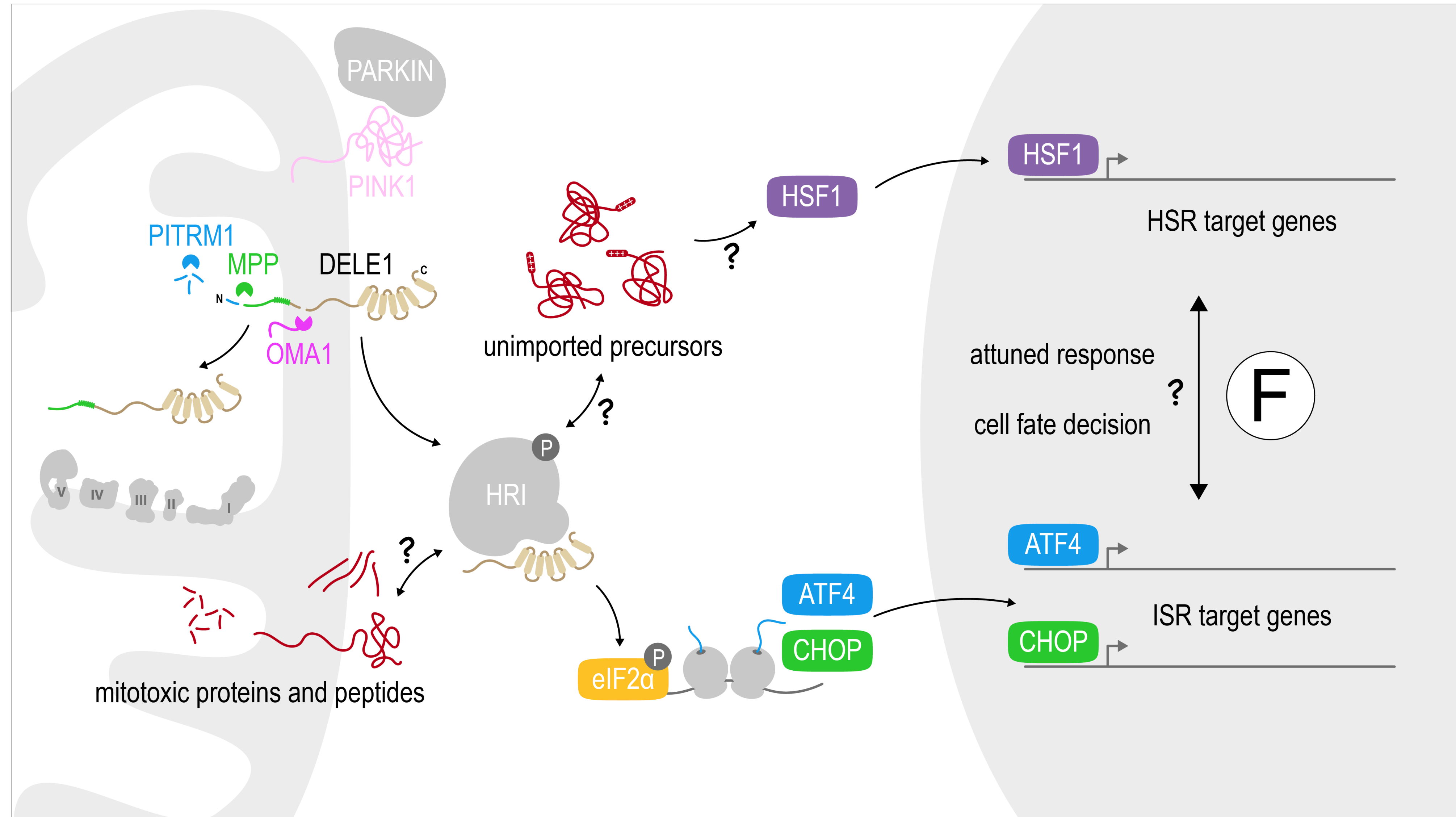
Haploider genetischer Screen zur Messung mitochondrialen Stresses



1	Gene	Low	LT	High	HT	Pv	FCPv	mutation ratio
2	A1BG	27	2242219	23	2404992	0.479820701	1	0.794241292
3	A1BG-AS1	1	2242245	0	2405015	0.482487642	1	0.932370212
4	A1CF	2	2242244	3	2405012	1	1	1.398555318
5	A2M	6	2242240	8	2405007	0.792319195	1	1.243160283
6	A2M-AS1	2	2242244	2	2405013	1	1	0.932370212
7	A2ML1	14	2242232	30	2404985	0.034059941	0.449510038	1.997936169
8	A4GALT	236	2242010	220	2404795	0.146233123	0.850756331	0.869158672
9	A4GNT	26	2242220	27	2404988	1	1	0.968230605
10	AAAS	11	2242235	7	2405008	0.347446481	1	0.593326499
11	AACS	19	2242227	34	2404981	0.074976587	0.666719895	1.668451959
12	AACSP1	23	2242223	30	2404985	0.495487326	1	1.216135059
13	AADACL3	0	2242246	1	2405014	1	1	0.932370212
14	AADACL4	1	2242245	2	2405013	1	1	1.864740425
15	AADAT	36	2242210	42	2404973	0.73513504	1	1.087765248
16	AAED1	14	2242232	17	2404998	0.857790527	1	1.132163829
17	AAGAB	95	2242151	117	2404898	0.336225802	1	1.148287525
18	AAK1;SNORA36C	206	2242040	229	2404786	0.737051037	1	1.036469799
19	AAMDC	159	2242087	156	2404859	0.430615698	1	0.914778321
20	AAMP	2	2242244	1	2405014	0.612341778	1	0.466185106
21	AANAT	12	2242234	13	2405002	1	1	1.01006773
22	AAR2	50	2242196	68	2404947	0.231016231	0.933491641	1.268023489
23	AARS	34	2242212	18	2404997	0.017509947	0.300671732	0.493607759
24	AARS2	14	2242232	10	2405005	0.414720879	1	0.665978723
25	AASDH	127	2242119	117	2404898	0.249011487	0.946029829	0.858955235
26	AASDHPPT	11	2242235	20	2404995	0.207782937	0.933491641	1.695218568
27	AASS	188	2242058	193	2404822	0.681924823	1	0.957167292
28	AATF;MIR2909	46	2242200	28	2404987	0.019534447	0.320928836	0.567529694
29	AATK-AS1	45	2242201	44	2404971	0.672859555	1	0.911650874
30	AATK;MIR657;MIR338;MIR1250	49	2242197	52	2404963	1	1	0.989454103
31	ABAT	145	2242101	164	2404851	0.649279705	1	1.054542861
32	ABCA1	1311	2240935	1346	2403669	0.260144534	0.954030166	0.957261866
33	ABCA10;ABCA5	137	2242109	162	2404853	0.418084896	1	1.102510762
34	ABCA11P;ZNF721	373	2241873	462	2404553	0.040973306	0.495038142	1.154839244
35	ABCA12	7	2242239	9	2405006	0.80553805	1	1.198761702
36	ABCA13	1108	2241138	1175	2403840	0.801539997	1	0.988749999

... bis zum Gen ~20,000

Ein Signalweg zum Aufspüren mitochondrialer Störungen in menschlichen Zellen



Danke!



