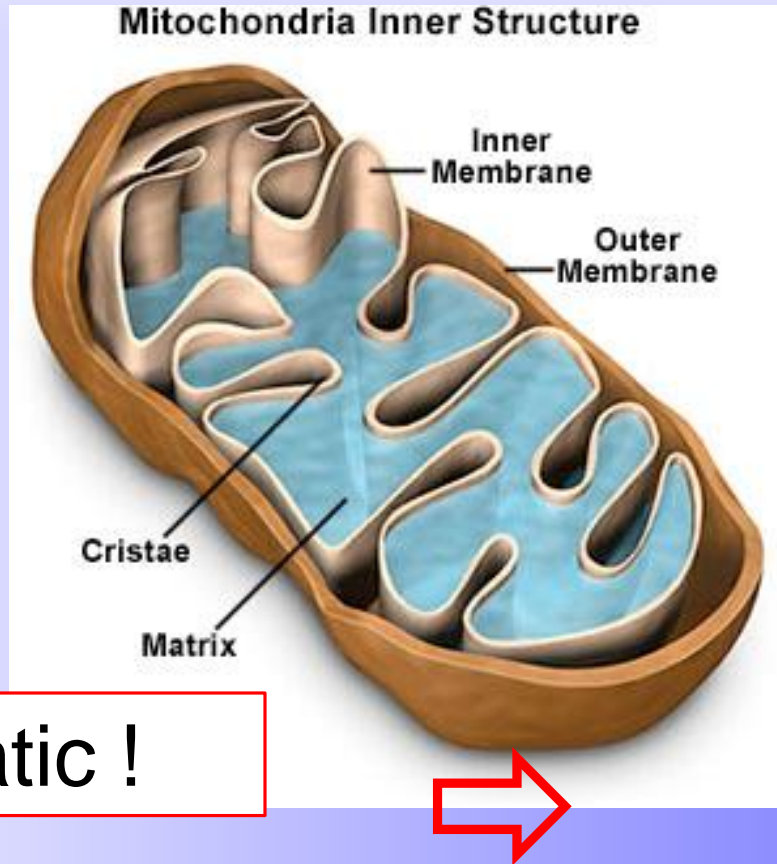


Abnormalities in mitochondrial proteins of AD patients



Sanja Ramirez
& Dr. Chitzuru Kinoshita
From the Rick Morrison laboratory

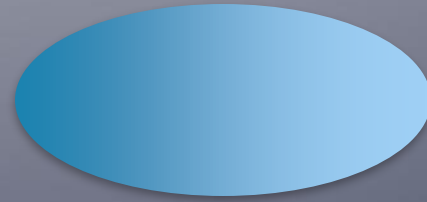
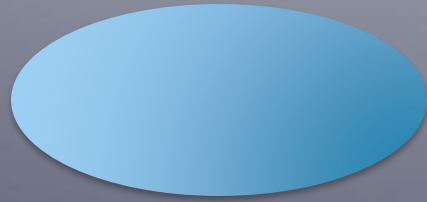
Mitochondria



Not static !

**Mitochondria
undergo Fission
and Fusion**

Fission Fusion






The background image is a fluorescence microscopy scan of mitochondria, which appear as bright red, branching, and interconnected structures against a dark background. Two blue arrows point to specific features: one points to a narrow constriction in a mitochondrial tube (labeled 'Fission'), and the other points to a site where two mitochondrial tubes are merging (labeled 'Fusion').

Fission

Real
mitochondria

Fusion

**Need to be balanced in order
for the Mitochondria to
function properly**



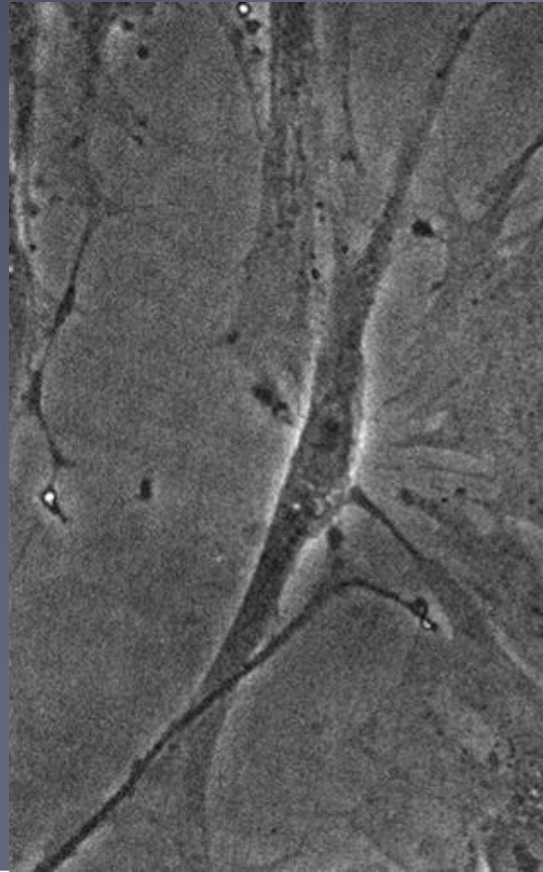
**Fission and Fusion
controlled by Proteins**

Abnormalities in the expression of these proteins seems to be involved in some neurodegenerative diseases!

In patients with Alzheimer's Disease (AD) these proteins are abnormal compared to aged-matched brain tissue from patients without AD

My project:

Is it possible to demonstrate the same protein abnormalities in fibroblast cells from AD patients?



Methods

- The Western Blot Approach

To detect Proteins such as Bif1

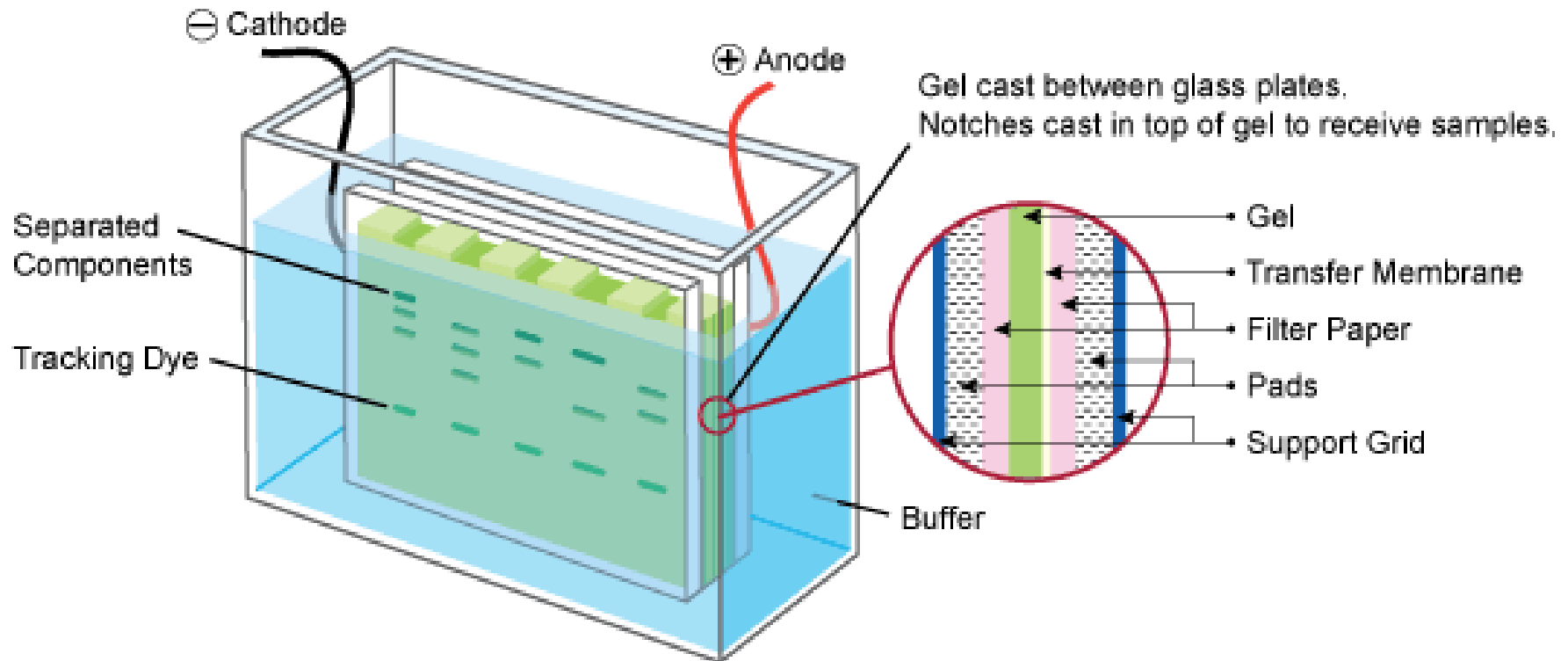
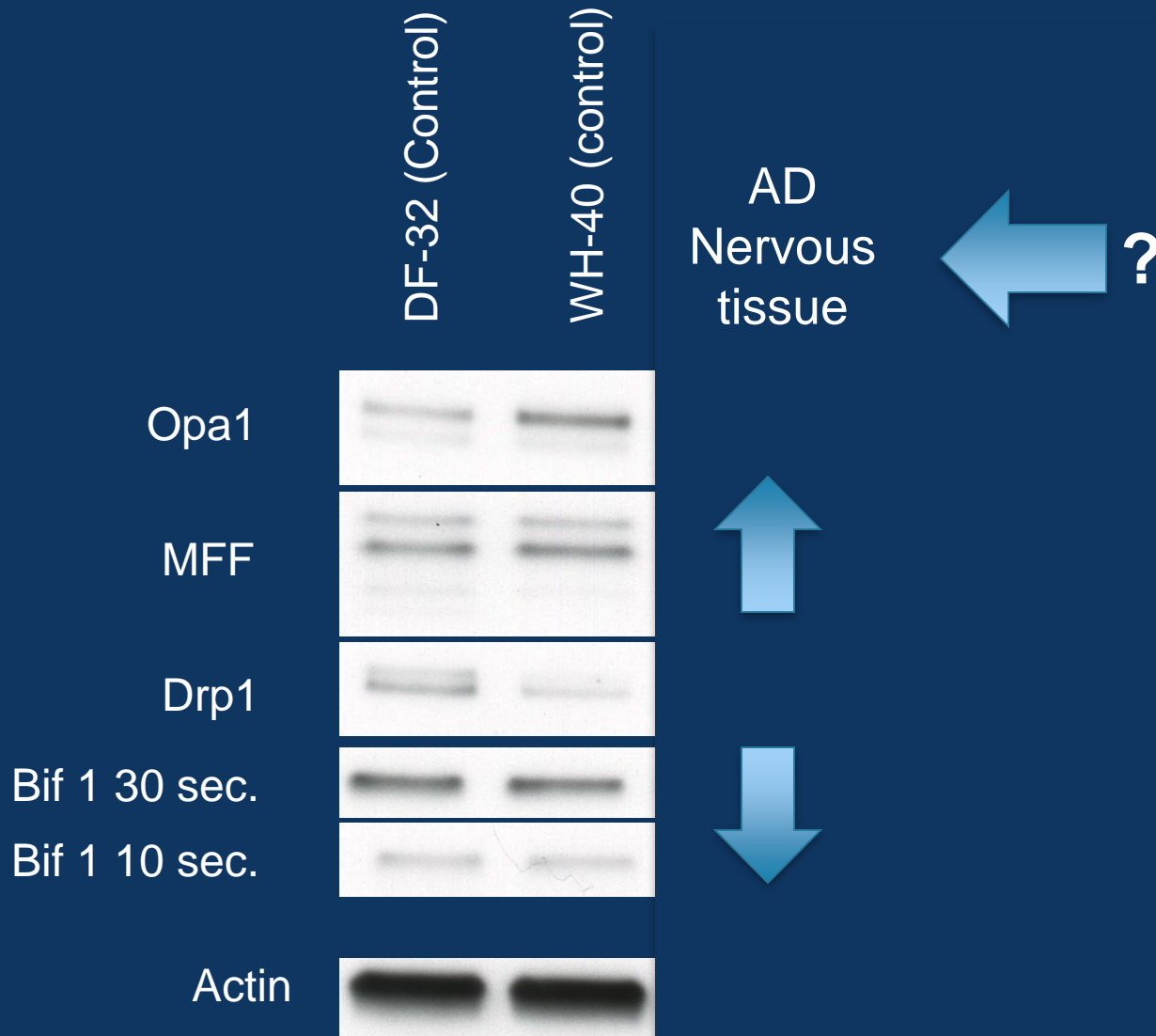


Diagram 1: Illustration of Western Blot Setup.

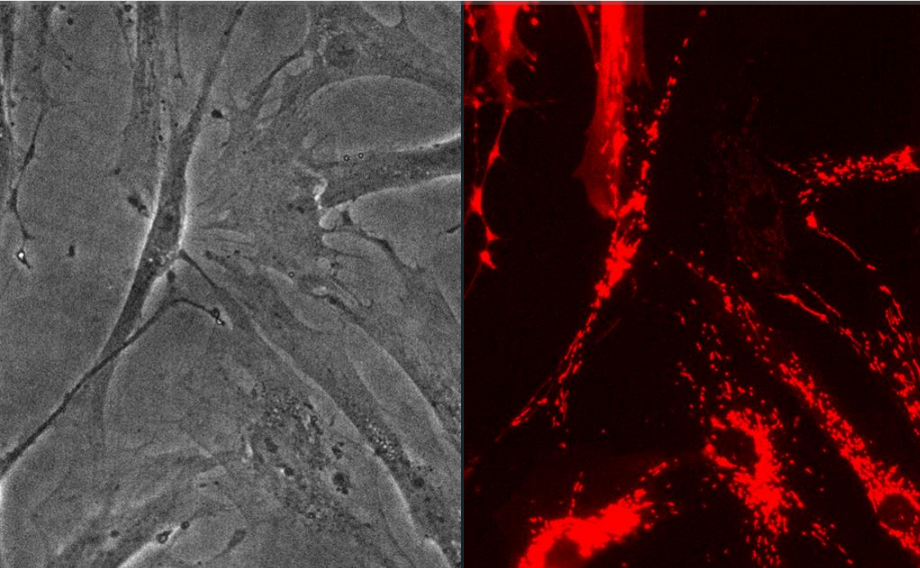
The RESULT!!

SR001: Human Fibroblast Cells; Protein expression levels

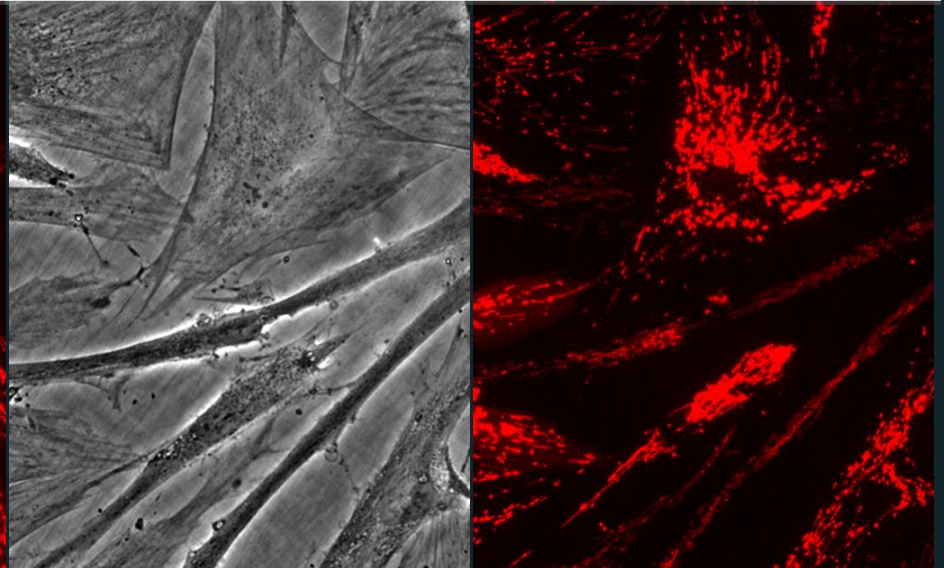


- ◎ **Human fibroblast cells** were cultured at a density of 7.5×10^3 cells/ml in 4 well-plates
- ◎ Cells fixed **3 days** after the cells were infected with a lentivirus expressing MitoDsRed2 ($1.5 \mu\text{l}$)
- ◎ **Cy3** : exposure – 1000ms, Low 52, High 100

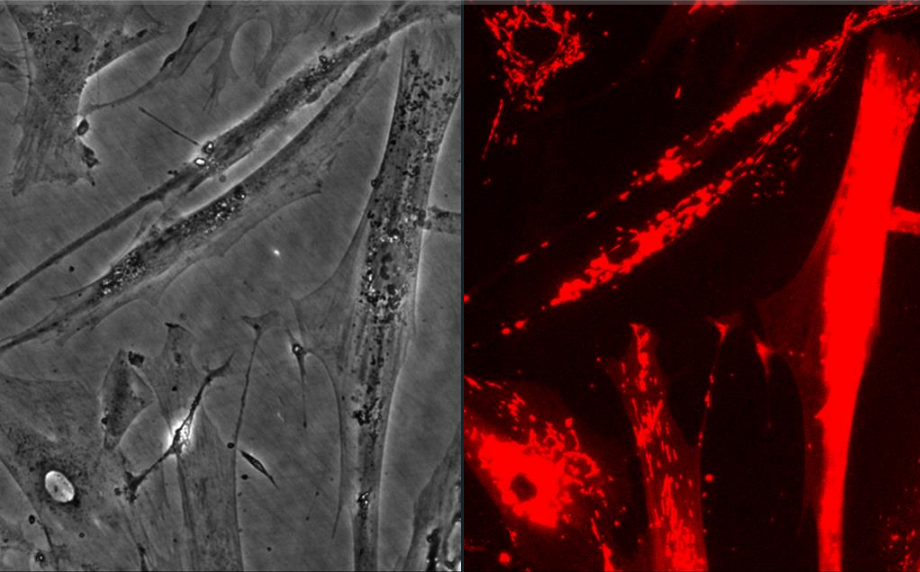
DF-32



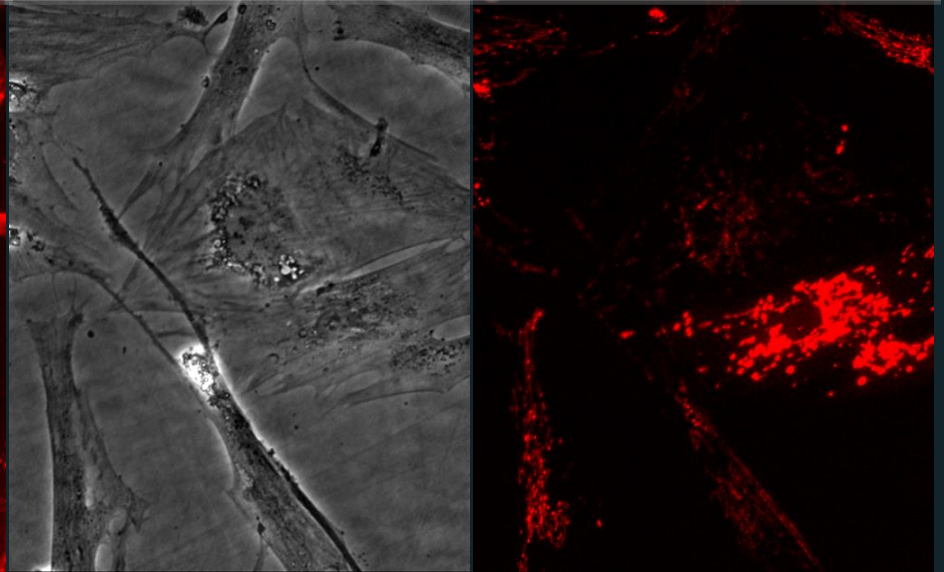
WH-40



PS2



Volga



Conclusion

- Although, we didn't find enough evidence to support the use of human fibroblast cells to screen for the presence of AD in this particular set of samples, we will now turn to samples with different mutations to see if we have better luck with those!

Acknowledgements

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