

Validating Human Mesenchymal Stem and Stromal Cell Identity Markers

PRESENTER:

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BACKGROUND:

- Mesenchymal stem and stromal cells (MSCs) support tissue homeostasis, regeneration and immunity
- The Braid lab recently found potential MSC biomarkers at the gene level
- My research focuses on testing these biomarkers at the protein level
- These markers may distinguish MSCs from a similar cell type in the body called fibroblasts (hdFNs)

METHODS

1. Human MSCs and hdFNs were grown in culture
2. These cells were labeled with fluorescent antibodies specific for the biomarker proteins of interest
3. Fluorescence intensity was compared by microscopy

RESULTS

PLOD2 and DDR2 are potential MSC protein biomarkers. 3 others were ruled out.

DISCUSSION

- Identifying MSC biomarkers allows these cells to be recognized and tracked in animal models
- These models are critical in determining the true origins and functions of MSCs in human health, and development.

PLOD2 and DDR2 are potential new biomarkers to track MSCs in living animals

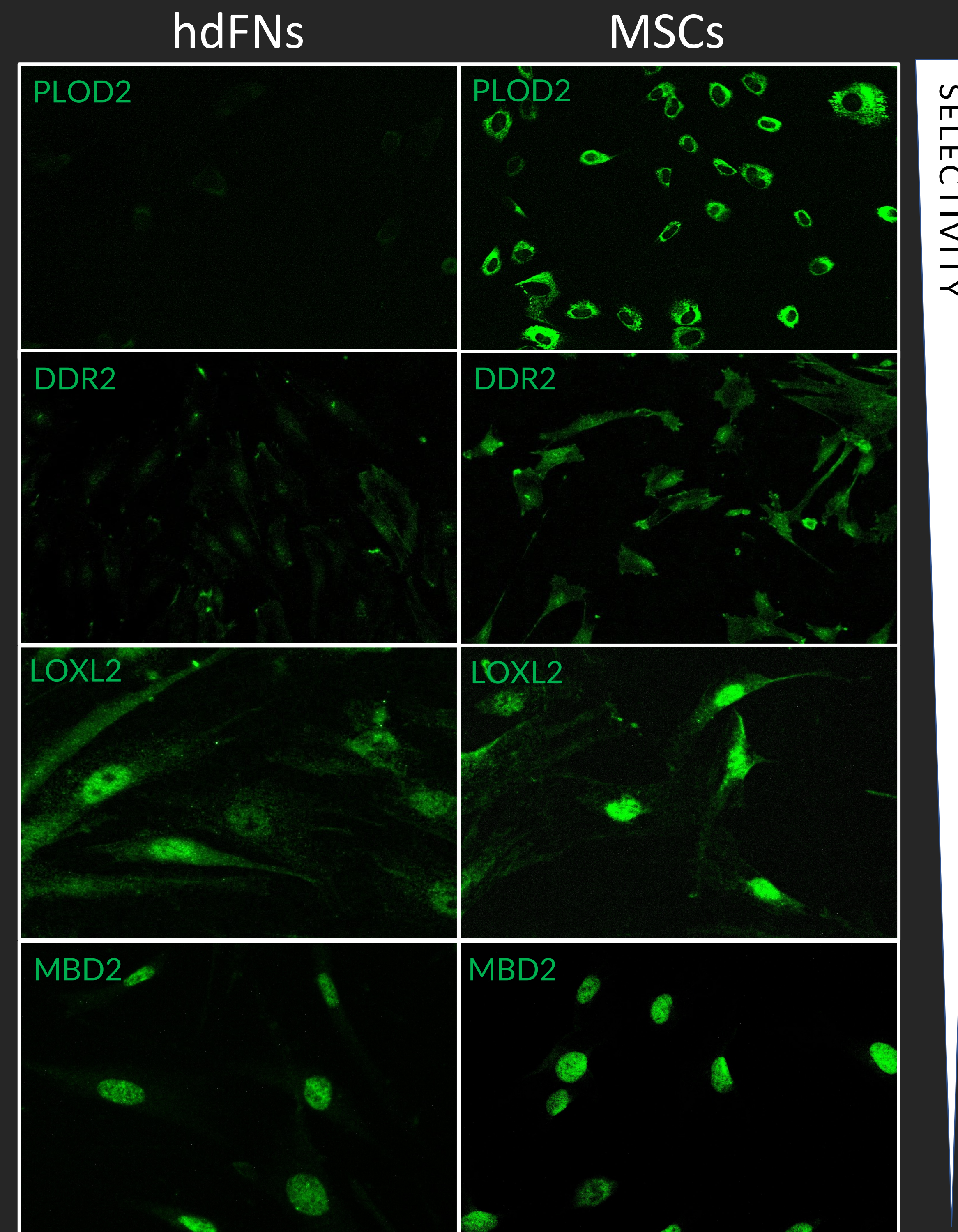
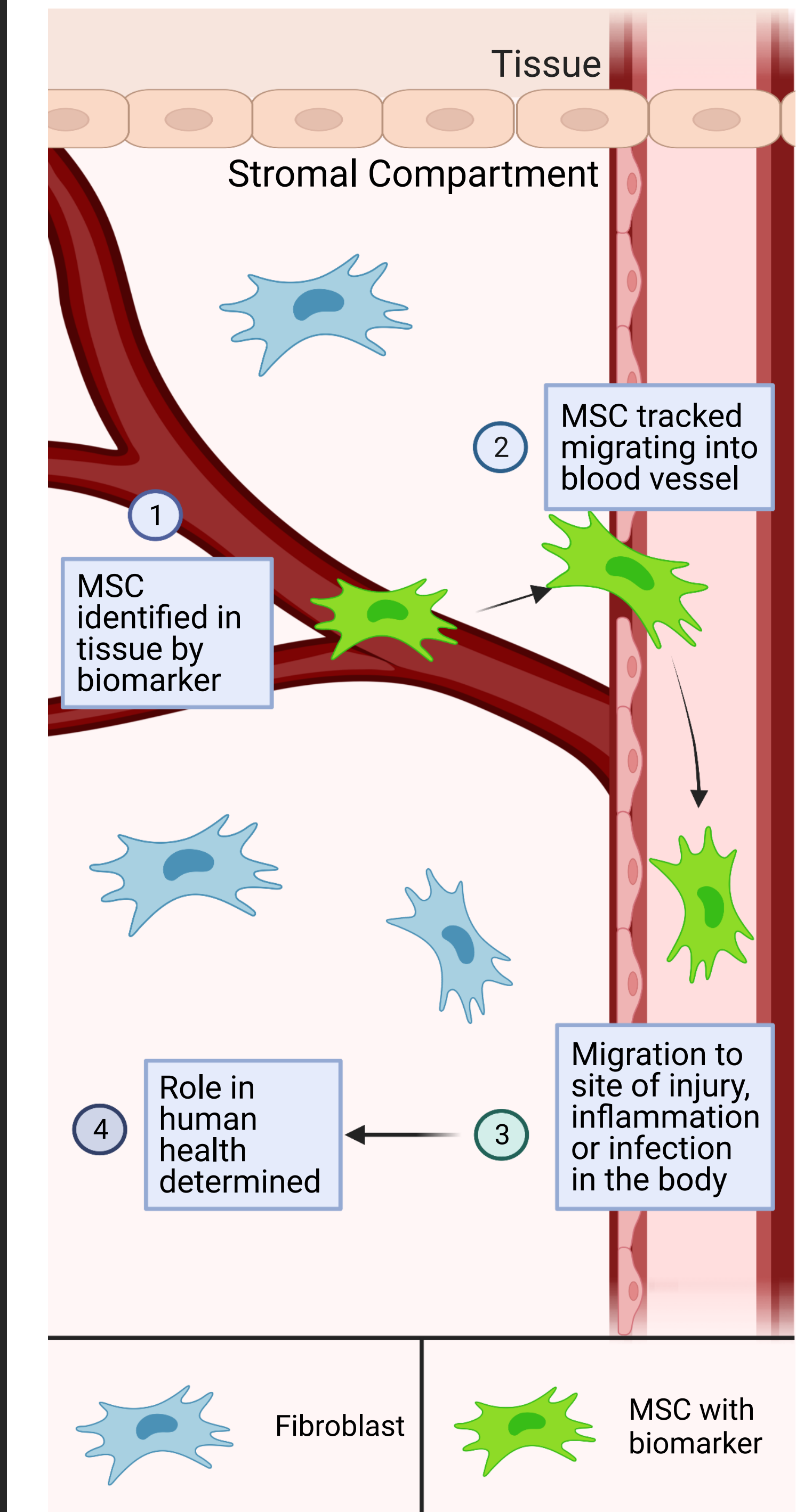


Fig. 1 Cells fluorescently labeled for various biomarkers. PLOD2 and DDR2 show potential as biomarkers, while LOXL2 and MBD2 do not. **Light intensity correlates to biomarker protein levels**

Fig. 2 Potential application of a MSC identity marker in the body.



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REFERENCES

Wiese, Danielle M., and Lorena R. Braid. *Stem Cell Research & Therapy*, vol. 11, no. 1, 2020,

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