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## **Transplantation of cultured corneal endothelial cells: Towards clinical application**

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# Stellingen

Behorend bij het proefschrift getiteld

## **Transplantation of human corneal endothelial cells: towards clinical application**

Daniele Spinozzi

1. Due to global scarcity of donor corneas available for transplantation, cell-based approaches are currently being developed as feasible alternatives to treat corneal endothelial diseases. (This thesis)
2. While injecting cultured corneal endothelial cells is already at a clinical stage with promising results, the development of bioengineered endothelial grafts needs more work before being used in the clinic. (This thesis)
3. Endothelial cell sheet transplantation of biocompatible carriers is strongly linked to the choice of the carrier material, as well as the *in vivo* model. (This thesis)
4. Approaches based on cultured endothelial cells have to become more independent from donor tissue while still adhering to regulatory guidelines for clinical applications. (This thesis)
5. Cultured cells should be fully characterized as endothelial cells by means of FACS and genomic sequencing. The high cost of this validation process may impair a wider development of cell-based therapies.
6. While the development of endothelial cells-carrier constructs in where the carriers are more able to be fully adsorbed once in the patient's eye goes very fast, the reproducibility of the native properties of such constructs still represents an issue.
7. Once a suitable carrier material has been found, a closer cooperation with surgeons will be needed to examine the best properties for surgical handling and implantation. This will provide a tailor-made solution for every patient.
8. Speaking of personalized therapies, improvements in safety and ethics regulations in gene editing will deliver cell-based therapies to cure genetic corneal diseases.
9. The eyes are the mirror of our soul. With face masks, the eyes are sometimes the only way we have to communicate with others. This is a very noble reason to take care of our eyes.
10. When you work in tissue engineering and tissue regeneration, you start with this amazing purpose that your work could give another chance to unlucky people. This, combined with the natural process of the science of thinking, investigating and validating a hypothesis, provides a very special feeling.