**P05-A152 HUMAN PLATELET LYSATE FOR CORNEA ORGAN CULTURE**

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**Purpose** Comprehensible concerns have been raised regarding the safety of FBS-based culture media. In this talk we discuss the benefits of using human platelet lysate (HPL) for the xeno-free culture of human donor corneas, isolated corneal stromal keratocytes (CSK) and stromal fibroblasts (SF).

**Methods** 32 human corneas unsuitable for transplantation from 16 human donors were cultured for 25-days in either 2%FBS or 2%HPL medium and compared by phase contrast microscopy (ECD and morphology), and next generation sequencing (NGS). Effects of 0.5%FBS, 5%FBS, 0.5%HPL, 2%HPL and 10%hPL on cultured human CSK and SF were evaluated. Differential cornea culture showed lower endothelial cell loss in the 2%HPL vs. 2%FBS group (ECL hPL=-0.7% vs. FBS=-3.8%; p=0.01). 2%HPL led to the upregulation of cytoprotective, anti-inflammatory and anti-fibrotic genes (e.g. HMOX1, SERPINE1, ANGPTL4, LEFTY2) and the downregulation of pro-inflammatory/apoptotic genes (e.g. CXCL14, HMOX1, SERPINE1, ANGPTL4, LEFTY2). CSK/SF cell viability remained high in all groups (98-100%). Cell numbers and proliferation rates increased with higher amounts of FBS (p<0.001). SMA1 increased with higher amounts of FBS (p=0.003) but decreased with incremental HPL substitution in both cell types (p=0.014). HPL contained more TGF-β1 (100%hPL 1.861 ±0.231ng/ml vs. 100%FBS 0.015±0.010ng/ml, p<0.001). bFGF and HGF were only detectable in 100% hPL (bFGF 0.067±0.017ng/ml, HGF 1.074±0.050ng/ml).

**Conclusion** 2%HPL is a suitable xeno-free substitution for 2% FBS in human cornea organ culture, inducing less ECL and potentially beneficial alterations in gene expression. CSK and SF can be cultured with xeno-free hPL. To maintain CSK characteristics substitution must remain minimal (0.5% hPL/FBS). hPL contains the antifibrotic HGF and bFGF, suppressing myofibroblast conversion.

**P06-A143 AN ARTIFICIAL-INTelligence-BASED DECISION SUPPORT TOOL FOR THE DETECTION OF CORNEA GUTTATA ON THE DONOR CORNEAS IN THE EYE BANK**

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**Purpose** To report on the occurrence of guttata in corneal donor tissue.

**Material & Methods** Retrospective database study of discard reasons for corneal donor tissue at Amnitrans EyeBank Rotterdam (AER) for the period from January 2019 to December 2021 and the outcome of an eight-question survey sent to European Eye Bank Association corresponding members addressing the occurrence of corneal guttata and the practice pattern regarding donor tissue with guttata.

**Results** Between 2019 and 2021 6039 donor corneas were processed at AER. Average discard rate because of guttata in this period was 9 (±4)% (n=552). Most corneas were discarded because of guttata at first evaluation (8%, n=481). Monthly discard rate because of guttata ranged from 3% to 19%. Yearly discard rates related to corneal guttata were 10 (±3)% in 2019, 8 (±3)% and 11 (±5)% in 2020, 2021, respectively. Average endothelial cell density (ECD) at the first evaluation from 2019-2021 was 2486 (±93) cells/mm2, with average monthly ECD ranging from 2343 to 2642 cells/mm2.