

**Appendix 2: Functional clusters regulated in the retina after IONT and IONC.** Genes were clustered using DAVID and PubMed reports. Clusters with a pEASE value < 1,00E-04 were considered significant. To avoid repetitions each gene was ascribed to one biological process. **IONT**: intraorbital nerve transection. **IONC**: intraorbital nerve crush. **FDR**: false discovery rate. In red are shown the main biological processes, in black their sub-clusters.

## Angiogenesis & coagulation

### Alpha-type channel activity/Voltage-gated ion channel activity

#### Transport

Ion transport

Ion transport- ATP mediated

ATP-mediated transport ABC TRANSPORTERS - GENERAL

Aminoacid transport

Protein transport

Nucleocytoplasmic

Lipid transport

#### Vesicle mediated transport

Exocytosis

ER to Golgi secretory pathway

#### Synapsis

#### Cell death

Antiapoptosis

Caspase recruitment

Apoptosis pathway

#### Cell-cycle/cell proliferation

#### DNA metabolism

Packaging

Repair

#### Transcription

DNA dependent

RNA polymerase II transcription factor activity

Regulation of transcription

#### Protein

Biosynthesis

Metabolism

Proteolysis/protein catabolism

Protein modification

Protein folding

#### Primary metabolism

Lipid Transport

Lipid Biosynthesis

Lipid metabolism

Generation of precursor metabolites and energy

Glycolysis/gluconeogenesis

Carboxylic acid

Carbohydrate metabolism

Aminoacid metabolism

Oxidoreductase activity

#### Cytoskeleton

Actin/actin binding

Intermediate filament

Microtubule

Intracellular transport

#### Extra Cellular Matrix

ECM, Cell Adhesion

#### Nervous system Development

#### Immune response & Inflammation

Humoral response

Antigen presentation

Inflammation

Cytokine/interleukin

Immune cell activation

#### Sensory perception of light stimulus

Phototransduction

Visual perception

#### Response to Unfolded protein

#### Signaling

G-protein coupled receptor protein signaling pathway

Small GTPase

Signaling, Cell communication

#### RNA metabolism

RNA processing

Translation

Ribosome

#### Growth factor: Nervous system

#### Crystallins

pEASE value: IONC: 3,00E-07

pEASE value: IONT: 1,9E-24 IONC: 1,9E-22

pEASE value: IONC: 2,40E-24

pEASE value: IONT: 1,1E-33 IONC: 3,7E-30

pEASE value: IONT: 4,70E-18

pEASE value: IONT: 2,5E-09

pEASE value: IONT: 7,26E-08 IONC: 5,20E-14

pEASE value: IONT: 4,00E-65 IONC 5,1E-34

pEASE value: IONT: 3,40E-15 IONC: 1,50E-09

pEASE value: IONT: 2,35E-06

pEASE value: IONT: 1,70E-13 IONC: 1,60E-08

pEASE value: IONT 6,10E-13 IONC 4,40E-07

pEASE value: IONT: 4,10E-07

pEASE value: IONT: 7,40E-05 IONC: 3,30E-04

pEASE value: IONT: 5,60E-08 IONC: 2,20E-07

pEASE value: IONT: 2,7E-07 IONC: 3,5E-05

pEASE value: IONT: 6,40E-07

pEASE value: IONT: 2,40E-19 IONC: 4,80E-06

pEASE value: IONT: 5,70E-09 IONC: 1,20E-05

pEASE value: IONT: 8,30E-29 IONC: 3,20E-16

pEASE value: IONT: 9,30E-13 IONC: 2,50E-09

pEASE value: IONT: 1,50E-09 IONC: 2,40E-04

pEASE value: IONT: 2,70E-137 IONC: 1,20E-100

pEASE value: IONT: 7,2E-127 IONC: 3,5E-90

pEASE value: IONT: 1,5E-56 IONC: 2,5E-47

pEASE value: IONT: 3,9E-134 IONC: 2,9E-95

pEASE value: IONT: 1,9E-118. IONC: 1,8E-29

pEASE value: IONT: 3,4E-44. IONC: 1,3E-27

pEASE value: IONT: 2,90E-05 IONC: 1,80E-4

pEASE value: IONT: 2,6E-32. IONC: 1,4E-19

pEASE value: IONT: 7,70E-18 IONC: 6,00E-12

pEASE value: IONT: 1,30E-09 IONC: 4,3E-06

pEASE value: IONT: 8,0E-19 IONC: 7,80E-14

pEASE value: IONT: 2,35E-06

pEASE value: IONT: 4,70E-05

pEASE value: IONT: 1,40E-17

pEASE value: IONT: 2,40E-09 IONC: 1,50E-04

pEASE value: IONT: 1,30E-10

pEASE value: IONT: 2,00E-10 IONC: 6,60E-05

pEASE value: IONT: 5,90E-13

pEASE value: IONT: 2,00E-21 IONC: 8,20E-20

pEASE value: IONT: 9,50E-08 IONC: 1,20E-04

pEASE value: IONT: 2,70E-11 IONC: 8,20E-13

pEASE value: IONT: 2,40E-20 IONC: 4,90E-06

pEASE value: IONT: 1,2E-22 IONC: 9,40E-14

pEASE value: IONT: 9,70E-23 IONC: 3,30E-08

pEASE value: IONT: 1,70E-24 IONC: 1,10E-38

pEASE value: IONT: 8,2E-08 IONC: 4,10E-07

pEASE value: IONT: 4,10E-07 IONC: 1,40E-07

pEASE value: IONT: 7,80E-17 IONC: 2,10E-04

pEASE value: IONT: 1,20E-06 IONC: 4,80E-11

pEASE value: IONT: 2,40E-06

pEASE value: IONT: 1,00E-17 IONC: 2,10E-16

pEASE value: IONT: 1,30E-05

pEASE value: IONT: 1,20E-07

pEASE value: IONT: 4,30E-06

pEASE value: IONT: 1,90E-07 IONC: 1,40E-09

pEASE value: IONT: 1,00E-03 IONC: 1,40E-04

pEASE value: IONT: 9,30E-09 IONC: 3,20E-07

pEASE value: IONT: 1,30E-09 IONC: 4,30E-06

pEASE value: IONT: 2,50E-06

pEASE value: IONT: 1,30E-04

pEASE value: IONT: 1,60E-37 IONC: 9,70E-15

pEASE value: IONT: 5,10E-05

pEASE value: IONT: 4,7E-35 IONC: 3,90E-25

pEASE value: IONT: 9,80E-05 IONC: 1,80E-23

pEASE value: IONT: 5,00E-37 IONC: 1,60E-24

pEASE value: IONT: 5,80E-36

pEASE value: IONT: 5,30E-06

pEASE value: IONT: 7,50E-12