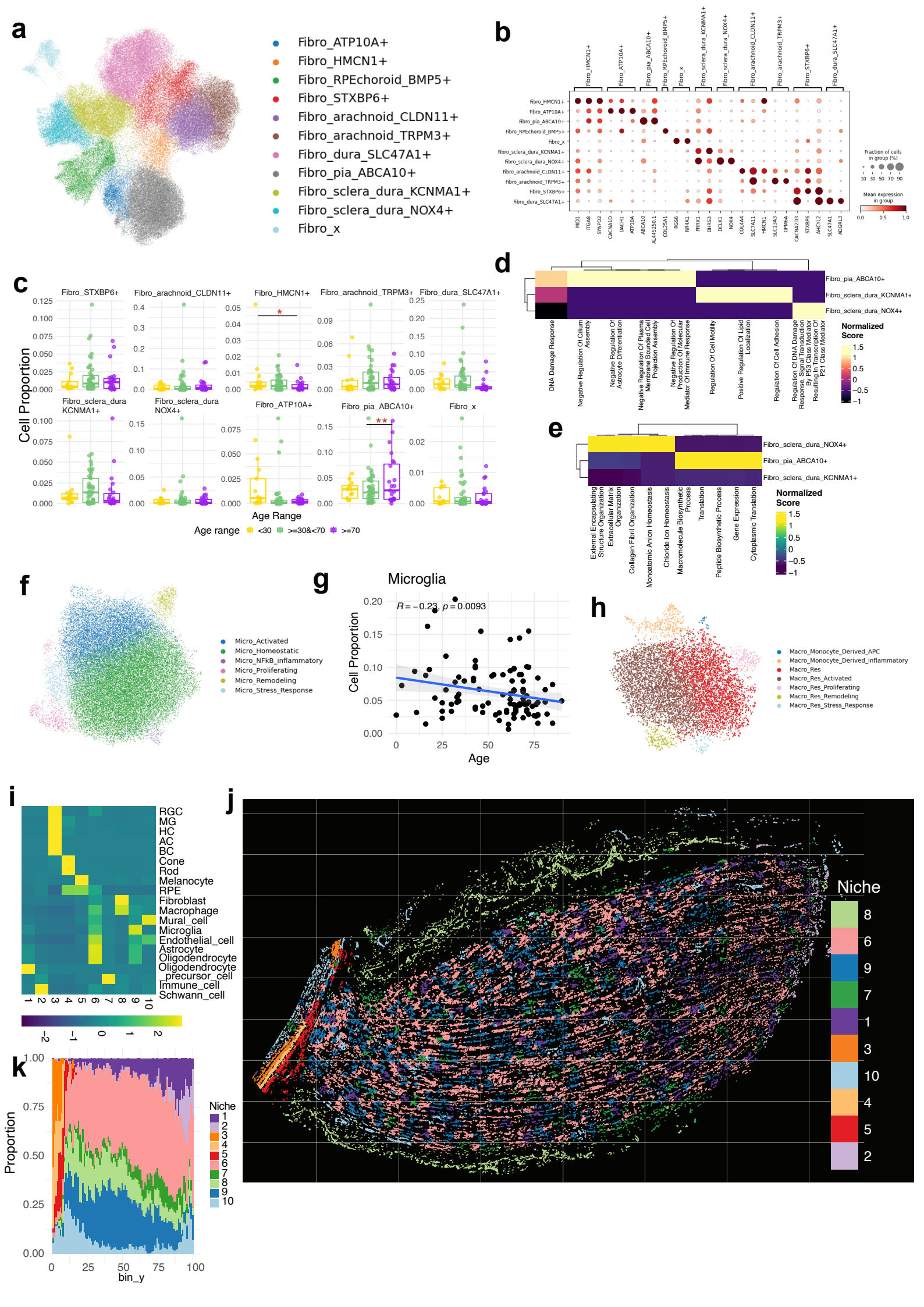
a
Fibro_ATP10A+
Fibro_HMCN1+
Fibro_RPEchoroid_BMP5+
Fibro_STXBP6+
Fibro_arachnoid_CLDN11+
Fibro_arachnoid_TRPM3+
Fibro_dura_SLC47A1+
Fibro_pia_ABCA10+
Fibro_sclera_dura_KCNMA1+
Fibro_sclera_dura_NOX4+
Fibro_x
b
Fraction of cells in group (%)
Mean expression in group
c
Cell Proportion
Age Range
Age range <30 >=30&<70 >=70
d
Normalized Score
DNA Damage Response
Negative Regulation Of Cilium Assembly
Negative Regulation Of Astrocyte Differentiation
Negative Regulation Of Plasma Membrane Bounded Cell Projection Assembly
Negative Regulation Of Production Of Molecular Mediator Of Immune Response
Regulation Of Cell Motility
Positive Regulation Of Lipid Localization
Regulation Of Cell Adhesion
Regulation Of DNA Damage Response, Signal Transduction By P53 Class Mediator Resulting In Transcription Of P21 Class Mediator
e
Normalized Score
External Encapsulating Structure Organization
Extracellular Matrix Organization
Collagen Fibril Organization
Monoatomic Anion Homeostasis
Chloride Ion Homeostasis
Macromolecule Biosynthetic Process
Translation
Peptide Biosynthetic Process
Gene Expression
Cytoplasmic Translation
f
Micro_Activated
Micro_Homeostatic
Micro_NFkB_inflammatory
Micro_Proliferating
Micro_Remodeling
Micro_Stress_Response
g
Microglia
R = −0.23, p = 0.0093
Cell Proportion
Age
h
Macro_Monocyte_Derived_APC
Macro_Monocyte_Derived_Inflammatory
Macro_Res
Macro_Res_Activated
Macro_Res_Proliferating
Macro_Res_Remodeling
Macro_Res_Stress_Response
i
RGC
MG
HC
AC
BC
Cone
Rod
Melanocyte
RPE
Fibroblast
Macrophage
Mural_cell
Microglia
Endothelial_cell
Astrocyte
Oligodendrocyte
Oligodendrocyte_precursor_cell
Immune_cell
Schwann_cell
j
Niche
k
Proportion
bin_y
Niche

Figure 7. Identification of other cell classes and cell niche
a, UMAP of fibroblasts derived from snRNA-seq data, with cells colored by cell types. **b,** Dot plot showing expression of marker genes across fibroblast types in the snRNA-seq data. Bar plot showing distribution of sample collection regions across astrocyte populations. **c**, Box plot showing cell proportions across three age groups for each fibroblast population. **d**, Heatmap showing the biological processed enriched among DEGs up-regulated with age. **e**, Heatmap showing the biological processed enriched among DEGs down-regulated with age. **f,** UMAP of microglia derived from snRNA-seq data, with cells colored by cell populations. **g,** Scatter plot showing cell proportion (Y-axis) of microglia associated with age (X-axis). **h,** UMAP of macrophages derived from snRNA-seq data, with cells colored by cell populations. **i,** Heatmap showing cell class composition for each identified spatial cell niche. **j.** Dim plot showing distribution of cell niches in situ across optic nerve from Xenium data. **k.** Bar plot displaying niche proportional composition across optic nerve in situ derived from Xenium data.