

Figure S1. Schematic representation of the phototransduction pathway in rod and cone cells. The scheme, generated using IPA, highlights proteins involved in the phototransduction pathways that were found to be downregulated in the 34 °C vs 26 °C comparison. These proteins are indicated in green. The legend provides details on all other symbols.

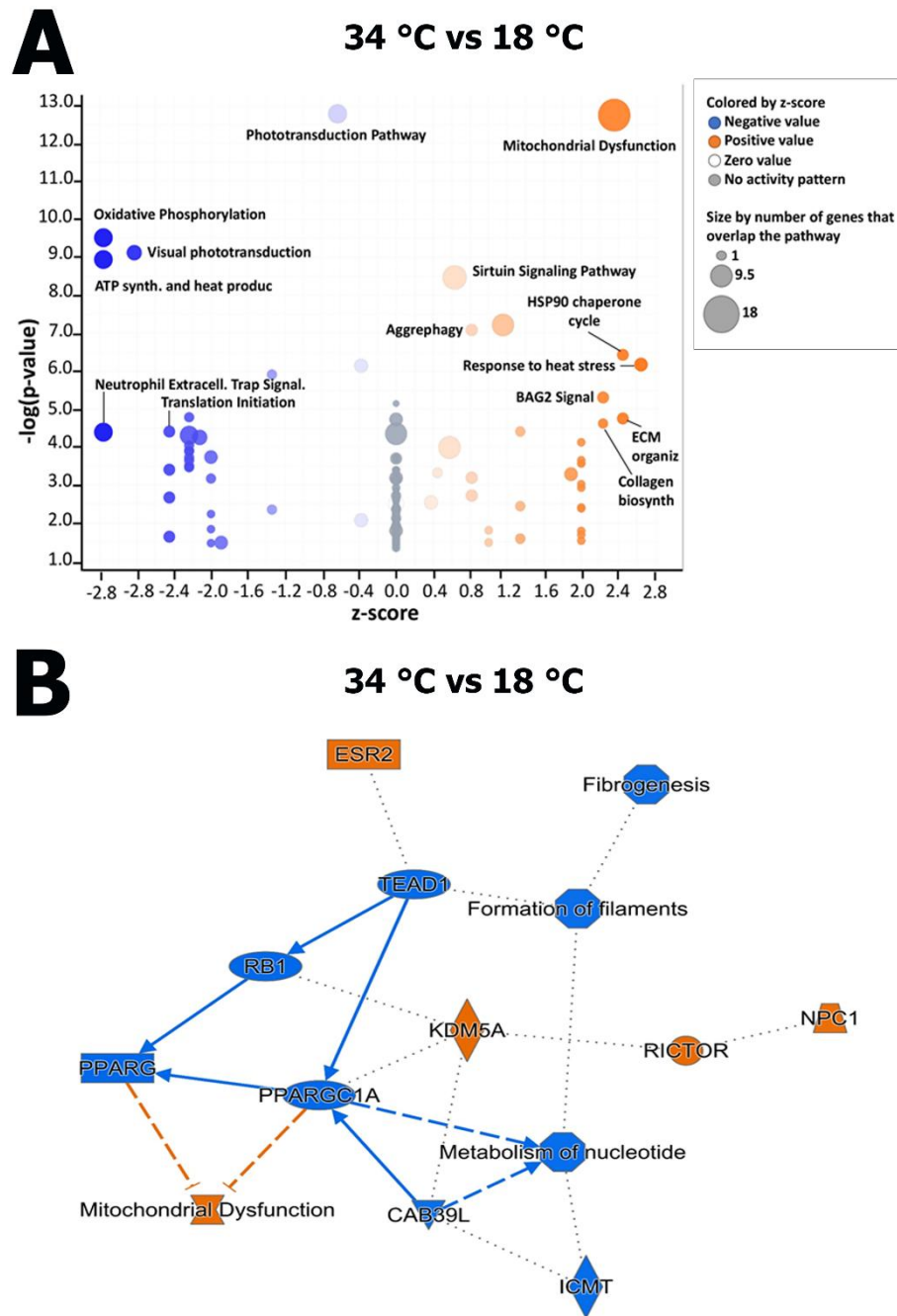


Figure S2. Bioinformatic analysis using IPA of differentially expressed proteins at 34 °C compared to 18 °C. **A)** Proteins differentially expressed in the 34 °C vs 18 °C comparison were analyzed using IPA to identify the most significantly altered canonical pathways. Proteins were considered differentially expressed if they were either uniquely present in one condition or exhibited a significant difference in expression (Student's test $FDR \leq 0.05$). For clarity, only a subset of pathways with significant Z-scores are labelled in the Volcano plot. The Z score indicates the activation or inhibition state of a canonical pathway: Z-scores ≥ 2 or ≤ -2 are considered significant, with positive scores (orange) indicating activation and negative scores (blue) indicating inhibition. The legend provides details on symbol colours and sizes. **B) Graphical summary.** A high-level overview of the major biological themes and the most significant entities predicted by IPA analysis for differentially expressed proteins in the 34 °C vs 18 °C comparison.

34 °C vs 26 °C

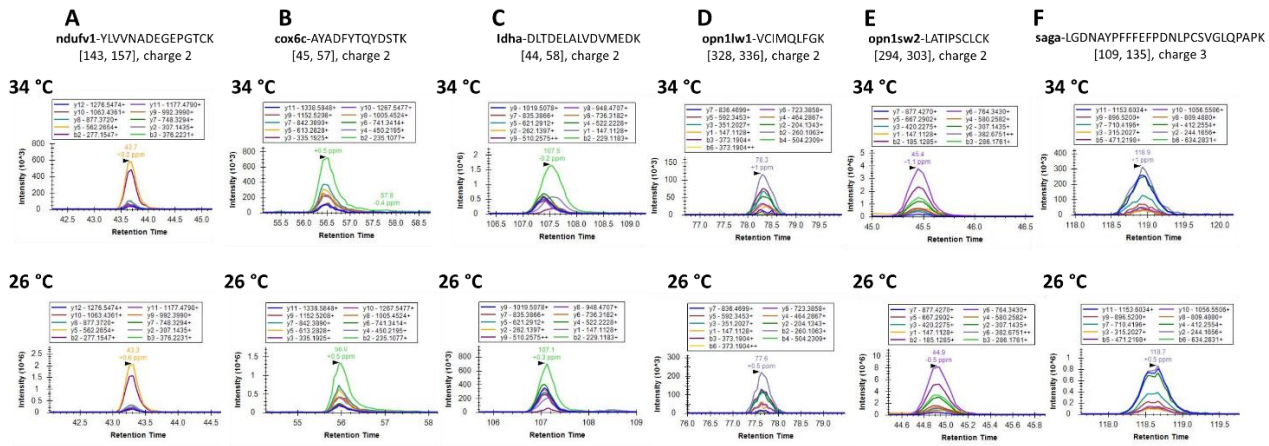


Figure S3. Parallel reaction monitoring (PRM) assay for detection of NADH dehydrogenase [ubiquinone] flavoprotein 1 (ndufv1), Cytochrome c oxidase subunit 6C (cox6c), L-lactate dehydrogenase A chain (Idha), Long-wavelength-sensitive-1 cone opsin (opn1lw1), Opsin 1 (Cone pigments), short-wave-sensitive 2 (opn1sw2), and S-arrestin (saga) in the 34 °C vs 26 °C comparison. Extracted-ion chromatogram (XIC) of the transitions observed for the peptide: A) 143-YLVVNADEGEPTGK-157 from NADH dehydrogenase [ubiquinone] flavoprotein 1 (ndufv1); B) 45-AYADFYTQYDSTK-57 from Cytochrome c oxidase subunit 6C (cox6c); C) 44-DLTDELALVDVMDK-58 from L-lactate dehydrogenase A chain (Idha); D) 328-VcIMQLFGK-336 from Long-wavelength-sensitive-1 cone opsin (opn1lw1); E) 294-LATIPScLcK-303 from Opsin 1 (Cone pigments), short-wave-sensitive 2 (opn1sw2) and F) 109-LGDNAYPFFFEFDNLPcSVGLQPAPK-135 from S-arrestin (saga).

34 °C vs 18 °C

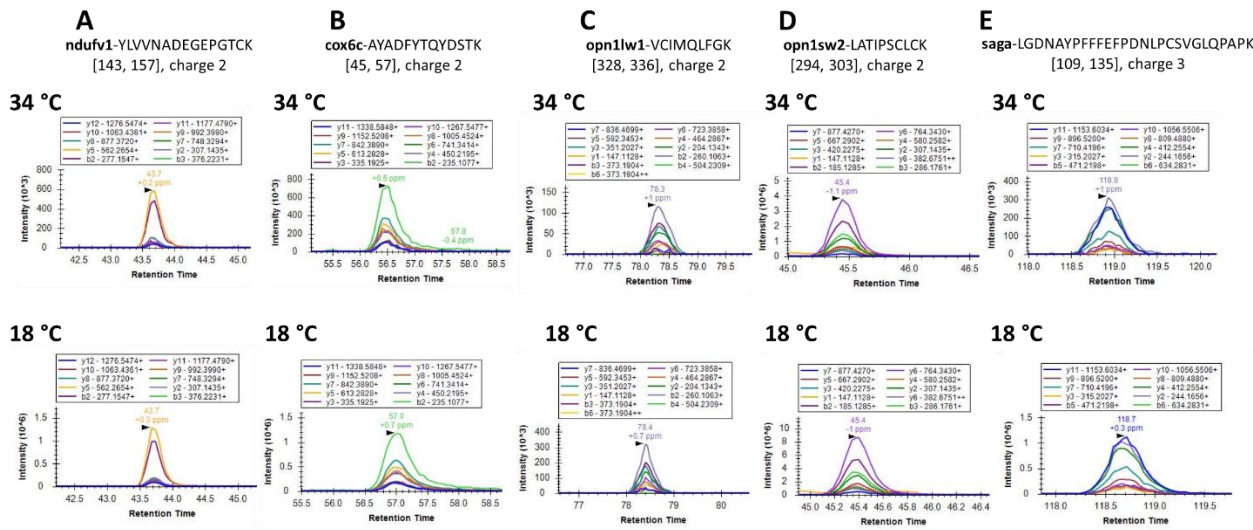


Figure S4. Parallel reaction monitoring (PRM) assay for detection of NADH dehydrogenase [ubiquinone] flavoprotein 1 (ndufv1), Cytochrome c oxidase subunit 6C (cox6c), Long-wavelength-sensitive-1 cone opsin (opn1lw1), Opsin 1 (Cone pigments), short-wave-sensitive 2 (opn1sw2), and S-arrestin (saga) in the 34 °C vs 18 °C comparison. Extracted-ion chromatogram (XIC) of the transitions observed for the peptide: A) 143-YLVVNADEGEPTCK-157 from NADH dehydrogenase [ubiquinone] flavoprotein 1 (ndufv1); B) 45-AYADFYTQYDSTK-57 from Cytochrome c oxidase subunit 6C (cox6c); C) 328-VcIMQLFGK-336 from Long-wavelength-sensitive-1 cone opsin (opn1lw1); D) 294-LATIPScLcK-303 from Opsin 1 (Cone pigments), short-wave-sensitive 2 (opn1sw2) and E) 109-LGDNAYPFFFEFPDNLPCSVGLQPAPK-135 from S-arrestin (saga).

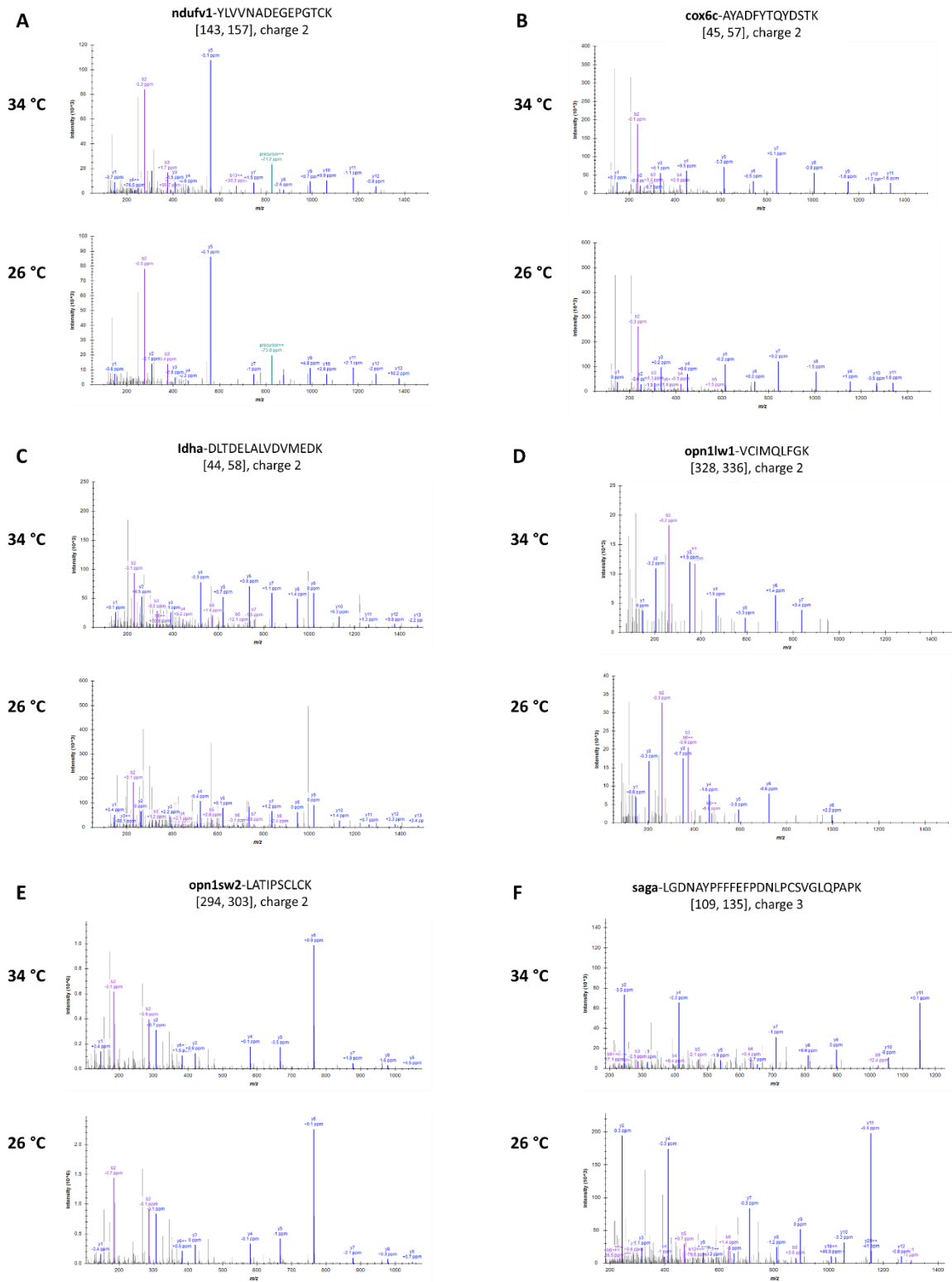


Figure S5. Representative MS² spectra of the transitions observed for the peptide: A) 143-YLVVNADEGEPTGK-157 from NADH dehydrogenase [ubiquinone] flavoprotein 1 (ndufv1); B) 45-AYADFYTQYDSTK-57 from Cytochrome c oxidase subunit 6C (cox6c); C) 44-DLTDELALVDVMDK-58 from L-lactate dehydrogenase A chain (ldha); D) 328-VcIMQLFGK-336 from Long-wavelength-sensitive-1 cone opsin (opn1lw1); E) 294-LATIPSLCK-303 from Opsin 1 (Cone pigments), short-wave-sensitive 2 (opn1sw2) and F) 109-LGDNAYPFFFEFPDNLPCSVGLQPAPK-135 from S-arrestin (saga) in the 34 °C vs 26 °C comparison.

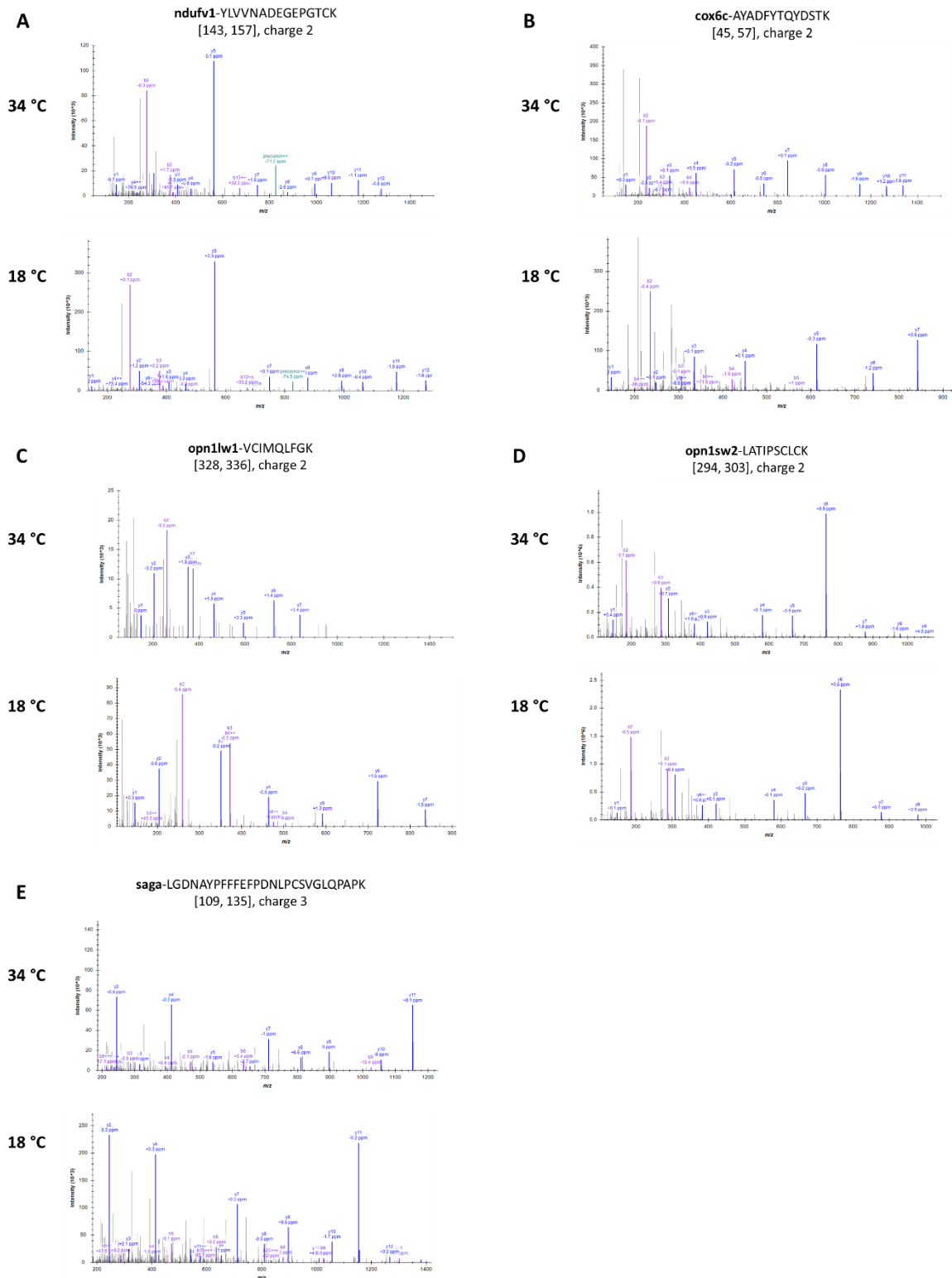


Figure S6. Representative MS² spectra of the transitions observed for the peptide: A) 143-YLVVNADEGEPTcK-157 from NADH dehydrogenase [ubiquinone] flavoprotein 1 (*ndufv1*); B) 45-AYADFYTYQDYSTK-57 from Cytochrome c oxidase subunit 6C (*cox6c*); C) 328-VcIMQLFGK-336 from Long-wavelength-sensitive-1 cone opsin (*opn1lw1*); D) 294-LATIPScLcK-303 from Opsin 1 (Cone pigments), short-wave-sensitive 2 (*opn1sw2*) and E) 109 LGDNAYPFFFEFPDNLPCSVGLQPAK-135 from S-arrestin (*saga*) in the 34 °C vs 18 °C comparison.