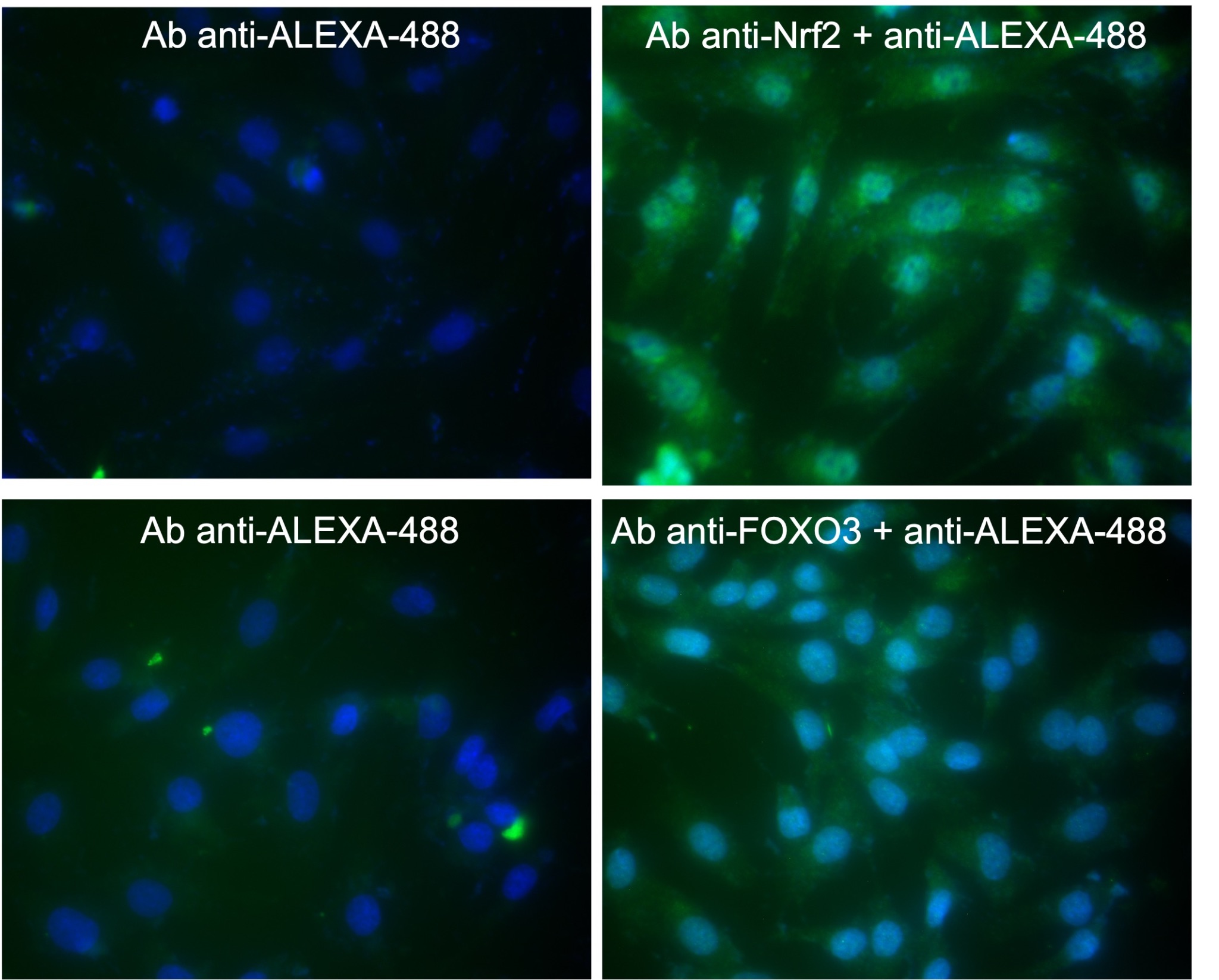
**Supplementary Material**

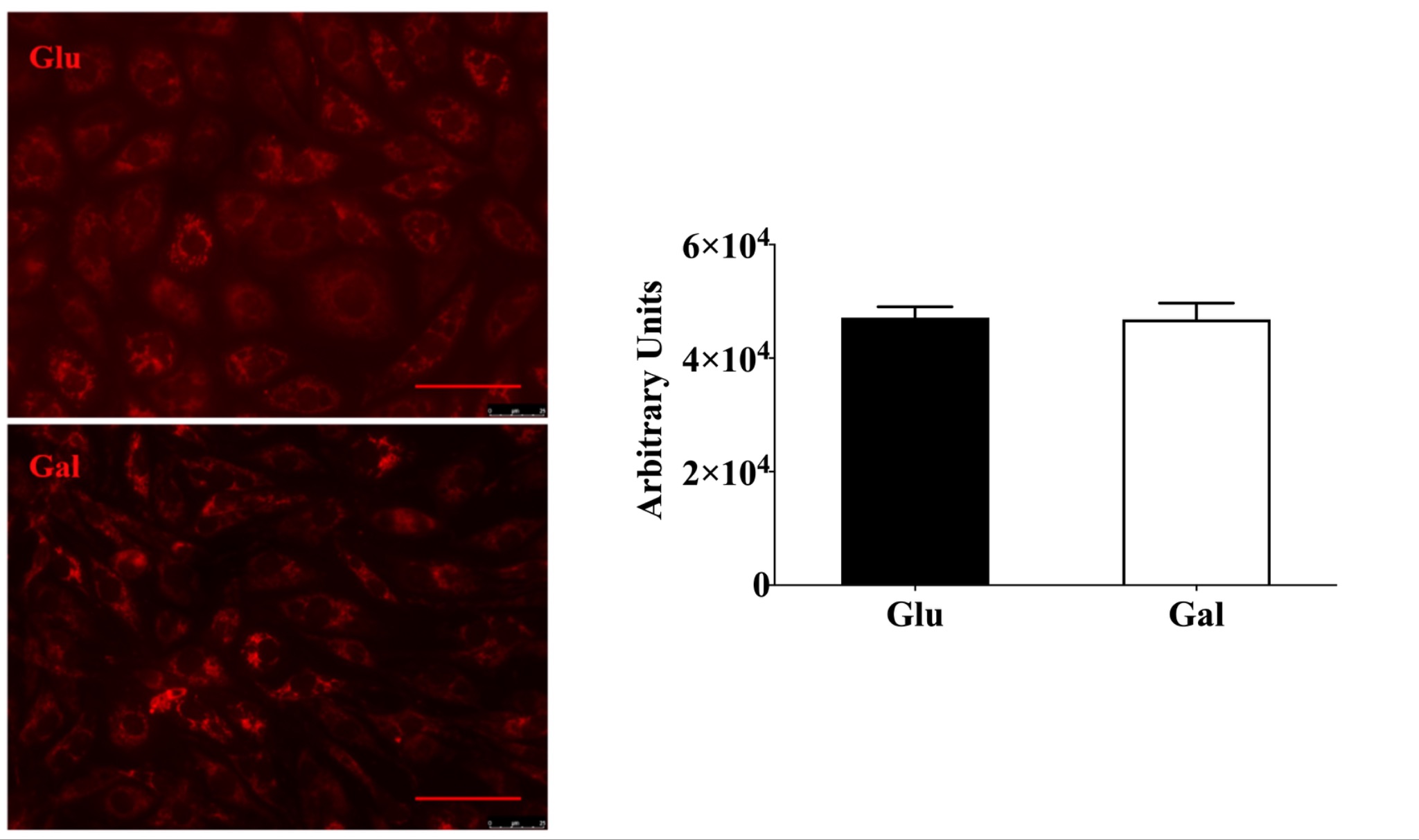


**Supplementary Fig. 1** Secondary antibody control in BAECS. Representative image of immunofluorescence from Nrf2 and FOXO3 (green) and DAPI (blue) in BAEC after 3 h of incubation with galactose medium. AC1 corresponds to primary antibody and AC2 corresponds to secondary antibody.

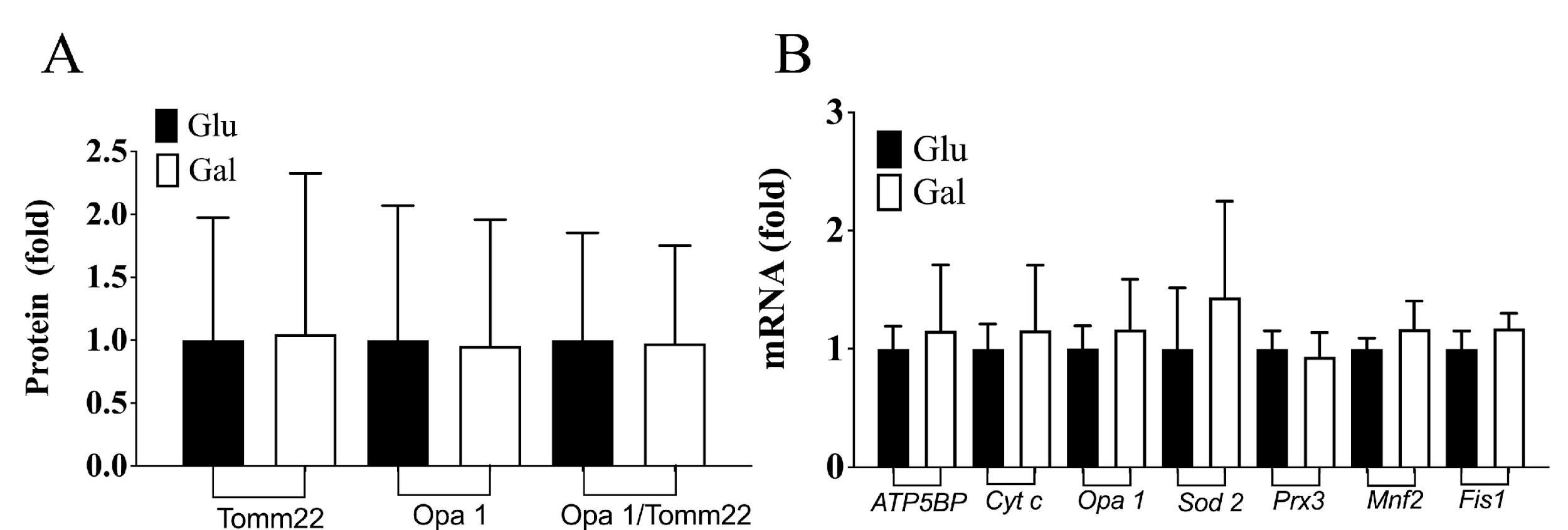
Diagrama

Descrição gerada automaticamente

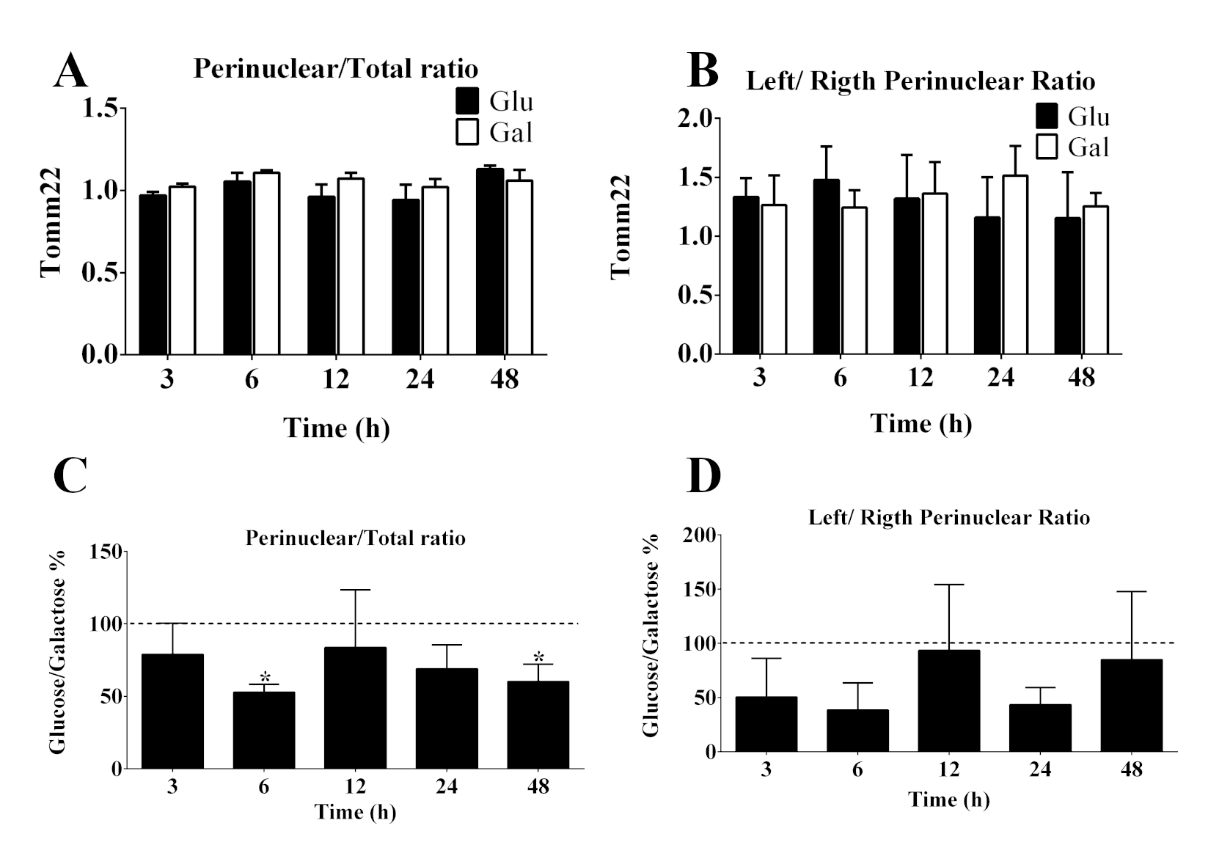
**Supplementary Fig. 2** Effect of cell passage on mitochondrial respiration in BAEC. Representative respirometry assay of BAEC in different cell passages P4, P5 and P8 in medium containing glucose. Arrows indicate the time of adding the oligomycin, FCCP and rotenone plus antimycin. Plots of O2 consumption (pMoles) quantification was corrected using total μg of protein.



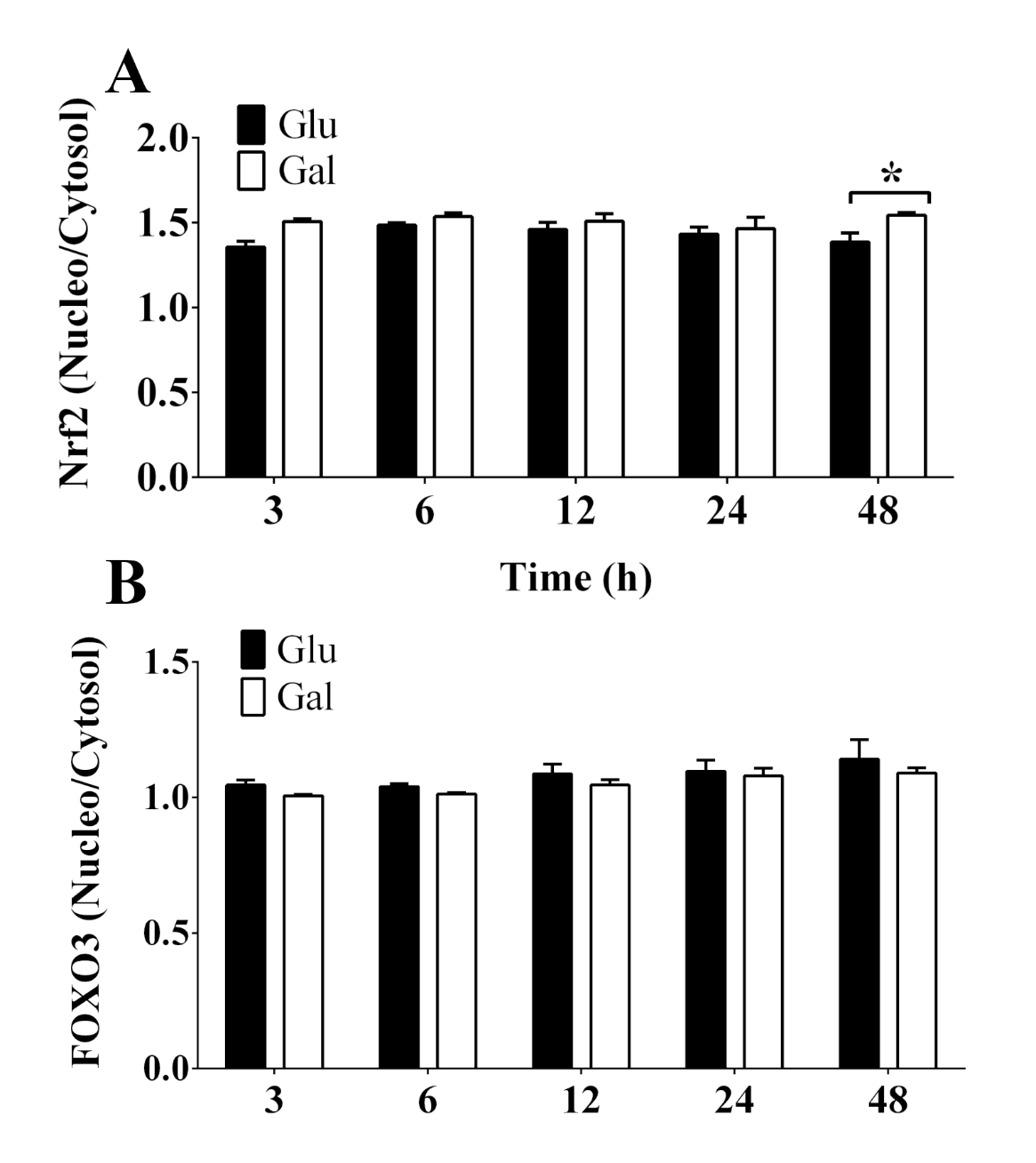
**Supplementary Fig. 3** Effect of glucose- or galactose-containing medium on mitochondrial O2- production in BAEC. MitoSOX Red labeling of fixed BAEC by microscopy, showing mitochondrial superoxide levels in BAEC conditioned in media containing glucose or galactose for 24 h. The red bars represent 100 μm. Data in graphs represent mean ± SEM (n=4). \* *p* < 0.05, indicate statistical difference between the groups of glucose (Glu) and galactose (Gal) by *t* test.



**Supplementary Fig. 4** Effect of glucose- or galactose-containing medium on mitochondrial content in BAEC at 24 h. (A) WB analysis of mitochondrial proteins Tomm22 and Opa1 and the ratio Opa1/Tomm22. (B) Gene expression changes in ETC components (*Cyt c, ATP5BP*), mitochondrial antioxidants (*Sod2, Prx3*) and mitochondrial dynamics regulators (*Fis1, Mnf2, Opa1*) coding genes. Data in graphs represent mean ± SEM (n=5/WB, n=4/qRT-PCR).



**Supplementary Fig. 5** Effect of glucose- or galactose-containing medium on mitochondrial dynamics and intercellular variability in BAEC. (A) Perinuclear/total ratio, (B) left/right intensity ratio. Intercellular variability was evaluated as the magnitude of standard deviation for: (C) perinuclear/total ratio, (D) left/right intensity ratio. Data in graphs represent mean ± SEM (n=4). \* *p* < 0.05, indicate statistical difference between the groups of glucose (Glu or dashed line) and galactose (Gal or black bars) by two-way ANOVA, followed by the Bonferroni’s *post hoc* test.



**Supplementary Fig. 6** Effect of glucose- or galactose-containing medium on Nrf2 or FOXO3 translocation in BAEC. (A) Nrf2 nucleus/cytosol ratio, (B) FOXO3 nucleus/cytosol ratio. Data are represented as mean ± SEM (n=4). \**p*<0.05 indicate statistical difference between glucose (Glu) and galactose (Gal) conditions, by two-way ANOVA, followed by the Bonferroni’s *post hoc* test.