

Role of the ABC transporter ABCC1 in squamous epithelia homeostasis

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Background:

Squamous Cell Carcinoma (SCC) development is strictly associated with the exposure to different environmental agents. The ABC subfamily member ABCC1 (also known as MRP1) acts as a primary active transporter of endogenous metabolites and xenobiotics of toxicological relevance, contributing thus to the cellular detoxification and tissue defense.

Methods and Results:

We have recently demonstrated that in basal epithelial cells ABCC1 expression is modulated by the transcription factor $\Delta Np63$, a master regulator of epithelial development. By combining several experimental approaches (RNA-seq, metabolomics, animal models and bioinformatic tools), we studied the impact of ABCC1 in the pathogenesis of SCC. We found that in SCC cells ABCC1 depletion is associated with reduced cell proliferation, dysregulation of redox homeostasis and decreased efflux of pro-inflammatory mediators. Notably, the genetic deletion of modulates the immunophenotype of SCC tumors.

Conclusions and Significance:

Collectively, these data unveil a novel role of ABCC1 in shaping the immunophenotype and the inflammation status of SCC, with the potential to open novel therapeutically actionable routes for the treatment of SCC.

Keywords:

Squamous Cell Carcinoma

ABC transporters

Inflammation

Tumor microenvironment

Metabolomic

References

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