Becn1 stable knockdown RAW264.7 cell line

中央研究院
ACADEMIA SINICA

Abstract

The BECN1 stable knockdown RAW264.7 cell line (RAWsh-Becn1) was established by transfecting Becn1 shRNA into murine macrophage cell line RAW264.7 using electroporation technology according to manufacturer's instructions of Amaxa Cell Line Nucleofector Kit V (VCA-1003). After transfection for 24 h, 5 μg/ml puromycin was added to a pool of Becn1 silencing clones to select and maintain the knockdown efficiency of the cell line. The generation of this cell line provides more opportunity to researchers who are interested in studying the effects of autophagy, especially in the field of macrophage associated immunological applications.

Docket Number

28T-1080725

Technological Advantages

- Stable rather than transient downregulation of Becn1 gene in difficult-transfected cell line RAW264.7.
- The only viable macrophage cell line with successful Becn1 knockdown using electroporation of shRNA without causing severe cell death.
- Saving time for inducing Becn1-specific autophagic inhibition as compared to siRNA knockdown technology.

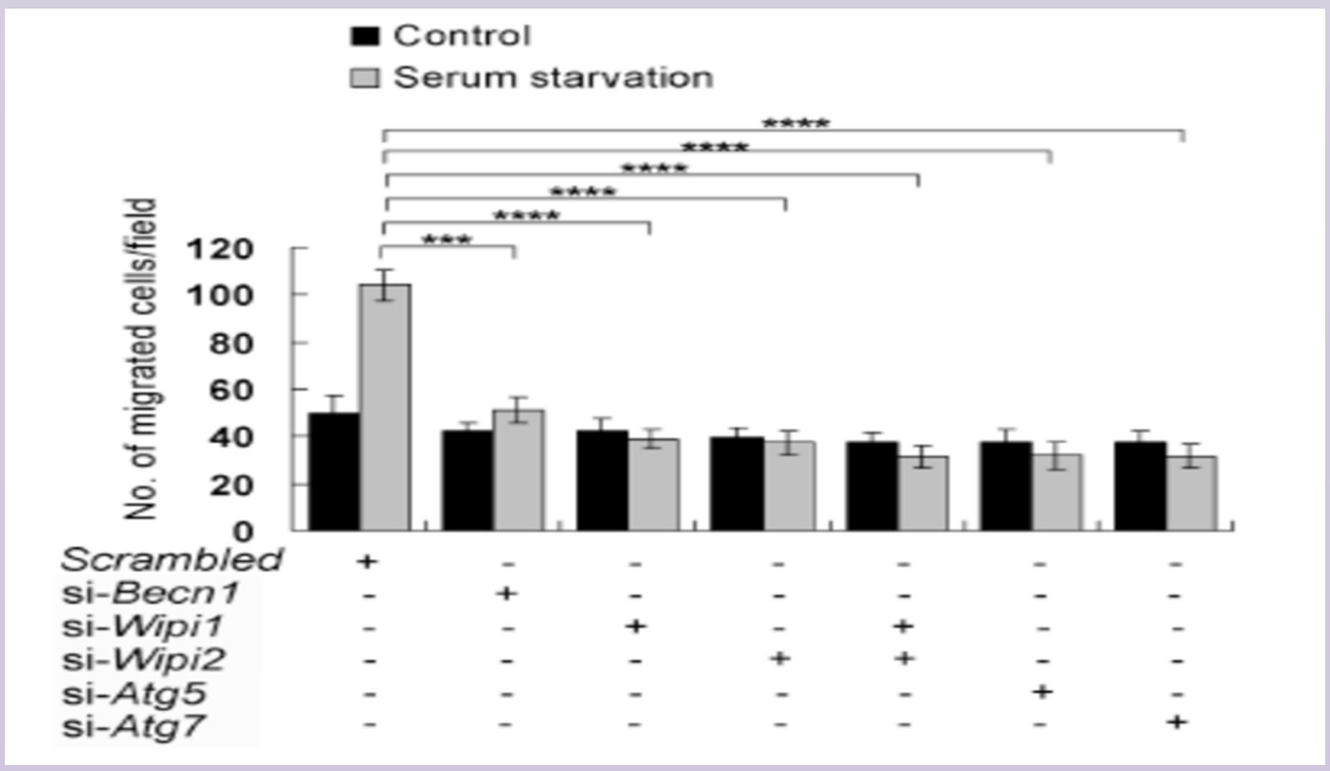


Figure1. Raw264.7 cells were transfected with scrambled, Becn1, Wipi1, Wipi2, Atg5, or Atg7 siRNA and treated without serum for 24 h as indicated.

Applications of Technology

- The study of Becn1 gene related immunological regulation.
- The research requires inhibition of autophagic process in macrophages.
- The selection of drugs for treating Becn1 deficient patients.
- The discovery of Becn1 dependent or independent biological effects of macrophages.
- The study of mechanism of Becn1-mediated autophagy in mammalian system.
- The autophagy inhibition sustained immune-related therapy.

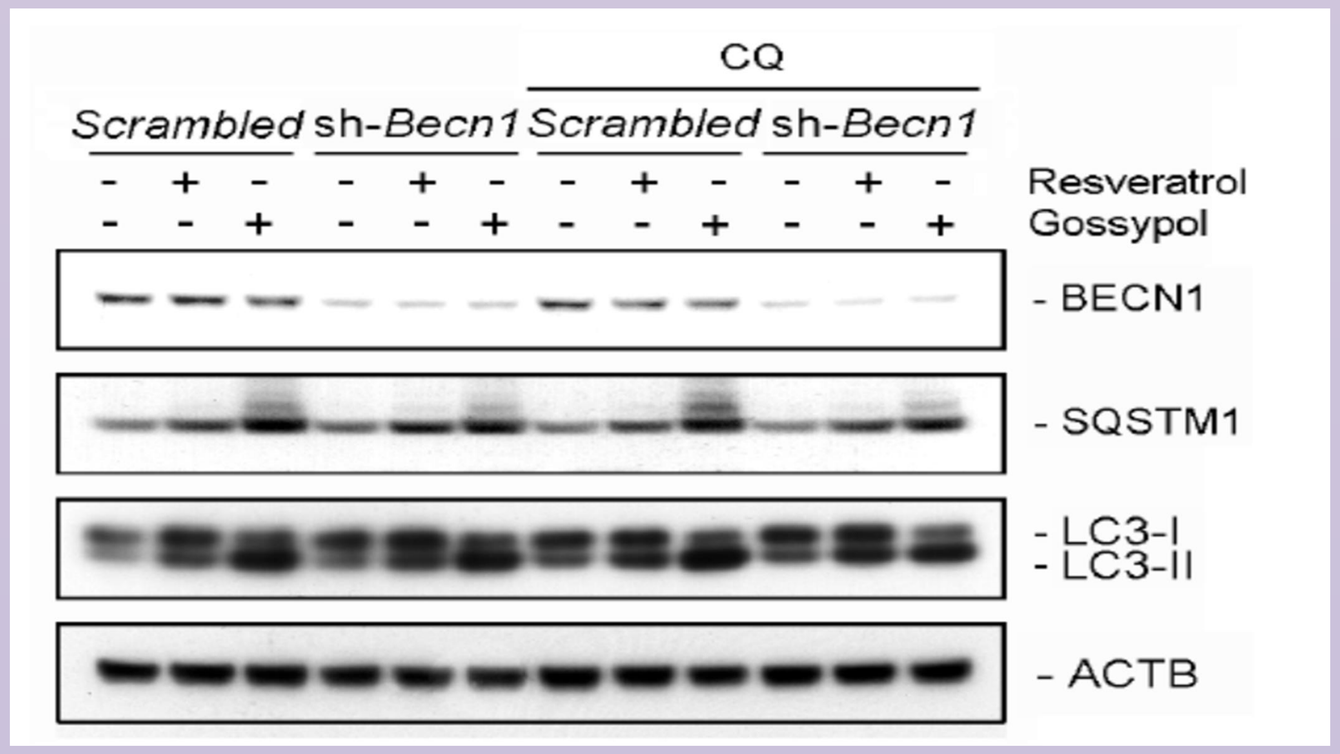


Figure2. Resveratrol and gossypol induced autophagy in a BECN1 - independent manner.

IP Status

- Know-how

Inventor

Chi-Ming Liang, Distinguished Visiting Chair, GRC
886-2-2787-2099
cmliang@gate.sinica.edu.tw

Contact

Yi-Li Chou, Technology Transfer Manager, DIPTT
886-2-2787-2552
qbowchou@gate.sinica.edu.tw