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СВЕРХЭКСПРЕССИЯ *MKRN2* ПОДАВЛЯЕТ РОСТ КЛЕТОК РАКА ЯИЧНИКОВ[1]

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Рак яичников характеризуется низкой пятилетней выживаемостью и высоким уровнем смертности. Изучено влияние Е3-лигазы MKRN2 (Makorin ring finger protein 2), роль которой при раке яичников не установлена, на рост клеток рака яичников. Экспрессию *MKRN2* в ткани рака яичников анализировали иммуногистохимически. Сверхэкспрессию *MKRN2* в двух клеточных линиях рака яичников (SKOV3 и CAOV3) индуцировали с помощью лентивирусной трансфекции, а уровни экспрессии верифицировали методом вестер-блотинга. Пролиферацию и рост клеток оценивали методом CCK-8 и формирования колоний, миграцию клеток оценивали с использованием transwell-метода, а апоптоз – с помощью проточной цитометрии. Ксенографтные опухоли получали в мышах, которым вводили клетки SKOV3, уровни MKRN2 и апоптоза в опухолевых клетках определяли иммуногистохимически и методом TUNEL. Уровни MKRN2 в ткани опухоли яичников были снижены по сравнению с нормальной тканью. Сверхэкспрессия *MKRN2* в клетках SKOV3 и CAOV3, трансфицированных лентивирусным вектором, снижала ассоциированное с опухолью поведение клеток и индуцировала апоптоз *in vitro*. Сверхэкспрессия *MKRN2* в ксенографтных опухолях приводила к подавлению роста опухоли и повышала апоптоз *in vivo*. Эти данные предполагают участие MKRN2 в канцерогенезе рака яичников и возможность использования *MKRN2* в терапии опухолей.

Ключевые слова: пролиферация клеток, миграция клеток, клеточная инвазия, MKRN2, рак яичников

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Overexpression of *MKRN2* Inhibits the Growth of Ovarian Cancer Cells

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Ovarian cancer has a high mortality with low five-year survival rates. The role of the E3 ligase Makorin ring finger protein 2 (MKRN2) in ovarian cancer is unknown. This study investigated the impact of MKRN2 on the growth of ovarian cancer. *MKRN2* expression in ovarian cancer tissue was analyzed by immunohistochemistry. Overexpression of *MKRN2* was induced in two ovarian cancer cell lines (SKOV3 and CAOV3) by lentivirus transfection, and expression levels were verified by western blotting. Proliferation and growth were determined by CCK-8 and colony formation assays, while migration was examined using transwell assays and apoptosis by flow cytometry. Xenograft tumors of transfected SKOV3 cells were established in mice, and immunohistochemistry and TUNEL assays measured MKRN2 levels and apoptosis in tumor cells. Reduced levels of MKRN2 in cancerous tissue relative to non-cancerous ovarian tissues. Lentiviral-based *MKRN2* overexpression in SKOV3 and CAOV3 cells reduced tumor-associated behavior while inducing apoptosis *in vitro*. In xenograft tumors, *MKRN2* overexpression inhibited ovarian cancer growth and increased apoptosis *in vivo*. These findings imply the *MKRN2* involvement in ovarian carcinogenesis and suggest its potential for treating the disease.

Keywords: cell proliferation, cell migration, cell invasion, MKRN2, ovarian cancer