Peran Lysine Specific Demethylase-1(LSD1) dalam Proses Epithelial Mesenchymal Transition (EMT) pada Malignant Pleural Mesothelioma (MPM) = The Role of Lysine Specific Demethylase-1 (LSD1) during Epithelial Mesenchymal Transition (EMT) Process in Malignant Pleural Mesothelioma

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Abstrak

Pendahuluan: Malignant pleural mesothelioma merupakan suatu keganasan yang bersifat agresif dan memiliki prognosis yang buruk. Hingga saat ini belum ditemukan suatu pilihan ter- api bermakna yang dapat memberikan respon baik. Dari beberapa penelitian dikatakan bahwa terdapat hubungan antara suatu proses epithelial mesenchymal transition (EMT) dengan kondisi prognosis yang buruk pada keganasan. Lysine specific demethylase-1 (LSD1) merupakan suatu enzim yang terlibat dalam proses EMT dan terdapat pada berbagai jenis kanker. Sehingga LSD1 dinilai memiliki peran penting dalam proses EMT.
Tujuan: Untuk mengetahui peran LSD1 pada malignant pleural mesothelioma
Metode: Studi ini mengobservasi overexpress SNAIL pada ACC-MESO 4 dengan gambaran karakteristik epithelial. Ekspresi protein-protein yang berhubungan dengan EMT dan LSD1 di- periksa menggunakan western blot assay. Uji proliferasi dan migrasi sel dievaluasi dengan wound healling assay
Hasil: Peningkatan ekspresi SNAIL menginduksi perubahan bentuk sel pada ACC-MESO-4 menjadi spindle-like shape sesuai proses EMT. Aktivasi SNAIL dengan ekspresi yang sangat tinggi berpengaruh terhadap proses penurunan ekspresi E-cadherin serta peningkatan ekspresi Fibronectin dan Vimentin. Peningkatan ekspresi SNAIL juga mengakibatkan sel ACC-MESO 4 menjadi agresif sehingga meningkatkan migrasinya. Penekanan ekspresi LSD1 dapat meng- hambat terjadinya proses EMT pada MPM.
Kesimpulan: LSD1 memiliki peran yang penting terhadap proses EMT dan penekanannya dapat menghambat terjadinya proses EMT.
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Introduction: Malignant pleural mesothelioma (MPM) has an aggressive characteristic and poor prognosis. To date, there were no significant therapy which have good response to MPM. Several studies said that there were correlation between epithelial mesenchymal transition (EMT) process and poor prognosis in cancer. Lysine-specific demethylase-1 (LSD1), an en- zyme which involved in EMT process and overexpressed in many types of cancers, could be a potential target to attenuate EMT process. This study demonstrated the role of LSD1 during EMT process in MPM.
Aim: To know the role of LSD1 in malignant pleural mesothelioma
Methods: This study observed an overexpressed SNAIL transfection in ACC-MESO 4 that has epithelial characteristic. All protein expression related EMT marker and LSD1 were examined by western blot. We evaluated migration profile with wound healing assay test.
Results: The overexpression of SNAIL have changed the cell morphology to become spindle shape-like, consistent with an EMT process. After the overexpression of SNAIL, e-cadherin expression level was down-regulated while fibronectin and vimentin were up-regulated. This EMT phenotype also increased the

migration rate. Finally, when we suppressed LSD1 with LSD1 inhibitor, the EMT process could be attenuated.

Conclusion: This study showed that LSD1 has an important role during EMT process and in- hibition of LSD1 could attenuated EMT process.