

## ABSTRACT

### Expression of Signal Regulatory Protein Alpha (SIRP $\alpha$ ) on Orbitocranial Meningioma

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#### Background

Several solid and neural tumors have immune checkpoint system to “escape” from body immune response. Signal Regulatory Protein Alpha (SIRP $\alpha$ ) is a transmembrane protein that is one of immune checkpoint system and is expressed on several solid and neural tumors. Meningioma, a solid tumor that originated from arachnoid cap cells, may have immune checkpoint system including SIRP $\alpha$ . This study aimed to investigate the expression of SIRP $\alpha$  on orbitocranial meningioma.

#### Method

This was a cross-sectional study enrolling histopathological tissue from resected meningioma. Paraffin blocks of meningioma from Sardjito General Hospital were examined for SIRP $\alpha$  expression by immunohistochemistry. The relationship between SIRP $\alpha$  and meningioma grading were analyzed with SPSS chi square.

#### Results

One hundred twenty nine (129) samples were included; 121 (93.8%) were female and 111 (86%) were grade 1 WHO. SIRP $\alpha$  was positively stained on 68 (52.2%) samples with mean of staining percentage 32.64%. Relationship between SIRP $\alpha$  expression and WHO grading were analyzed, SIRP $\alpha$  was positive in 59 (53.2%) grade 1 WHO and 9 (50.0%) grade 2-3 WHO (p value = 0.804).

#### Conclusion

This was the first study that demonstrate SIRP $\alpha$  expression on orbitocranial meningioma (52.2%). Given the known role of SIRP $\alpha$  in immune checkpoint system, the role of SIRP $\alpha$  in meningioma should be further studied in importance to estimate the potential of future treatment.

#### Keywords

*Orbitocranial meningioma, SIRP $\alpha$ , immune checkpoint*

## INTISARI

### **Ekspresi *Signal Regulatory Alpha* (SIRP $\alpha$ ) pada Meningioma Orbitokranial**

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#### **Latar Belakang**

Beberapa tumor padat dan tumor saraf memiliki sistem *immune checkpoint* untuk menghindari dari respon imun tubuh. *Signal Regulatory Protein Alpha* (SIRP $\alpha$ ) merupakan protein transmembran yang merupakan salah satu sistem *immune checkpoint* dan diekspresikan oleh beberapa tumor padat dan tumor saraf. Meningioma, yang merupakan tumor padat yang berasal dari sel *cap arachnoid*, dapat memiliki sistem *immune checkpoint* termasuk SIRP $\alpha$ . Penelitian ini bertujuan untuk mengetahui ekspresi SIRP $\alpha$  pada meningioma orbitokranial.

#### **Metode**

Penelitian ini menggunakan metode potong lintang dengan sampel blok parafin jaringan meningioma dari RSUP Dr. Sardjito. Ekspresi SIRP $\alpha$  diperiksa dengan imunohistokimia. Hubungan ekspresi SIRP $\alpha$  dan derajat patologi meningioma dianalisis dengan SPSS chi-square.

#### **Hasil**

Seratus dua puluh sembilan (129) sampel diinklusi; sebanyak 121 (93.8%) merupakan perempuan dan 111 (86%) merupakan meningioma WHO *grade* 1. SIRP $\alpha$  terwarna pada 68 (52.2%) sampel. Hubungan antara ekspresi SIRP $\alpha$  dengan *grading* WHO dianalisa; SIRP $\alpha$  positif pada 59 (53.2%) WHO *grade* 1 dan 9 (50.0%) WHO *grade* 2-3 (*p value* = 0.804).

#### **Kesimpulan**

Penelitian ini merupakan penelitian pertama yang menemukan ekspresi SIRP $\alpha$  sebanyak 52.2% meningioma orbitokranial. Mengingat peran SIRP $\alpha$  pada sistem *immune checkpoint*, diperlukan studi lebih lanjut mengenai peran SIRP $\alpha$  pada meningioma untuk kemungkinan terapi di masa depan.

#### **Kata Kunci**

*Meningioma orbitokranial, SIRP $\alpha$ , immune checkpoint*