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a brain tumor plays several important roles including characterization of the brain tumor, providing preliminary information of tumor type and grade, establishing a differential diagnosis, providing sufficient anatomical detail for surgical planning, and identifying tumor-related complications such as hemorrhage, hydrocephalus, herniation, or mass effect. Intraoperative imaging has improved neurosurgical morbidity and increased the amount of tumor resected, which is associated with improved quality of life and increased survival of patients. Postoperative imaging is important to monitor treatment response and detect tumor progression as early as possible. Imaging often will detect tumor progression before there is clinical deterioration.

Multidisciplinary session VI.:

P. Biochemistry session

P/1 INFLUENCE OF PROTEIN PHOSPHATASE-1 INHIBITORY PROTEINS ON THE DEPHOSPHORYLATION OF RETINOBLASTOMA PROTEIN

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Keywords: protein phosphatase-1, retinoblastoma protein (pRb), pRb-dephosphorylation, LIM-kinase-2 (LIMK-2), kinase enhanced phosphatase inhibitor (KEPI)

Introduction: The phosphorylation level of retinoblastoma protein (pRb) plays an important role in the regulation of cell cycle, and therefore has a major impact on the survival of malignant cells. Protein phosphatase-1 (PP1) has been considered as one of the pRb phosphatases, however its direct role in the dephosphorylation has not been fully established. The goal of our study was to investigate the role of PP1 and possible PP1 inhibitory proteins in pRb-dephosphorylation.

Methods: The catalytic subunit of PP1

(PP1c) was silenced by transfection of siRNA in HeLa cells. Vectors coding Flag-tagged KEPI (kinase enhanced phosphatase inhibitor) and LIMK-2 (LIM-kinase-2) were transfected into MCF-7 and HeLa cells, respectively. The efficacy of the transfections was checked via Western blot analysis and immunofluorescence. The viability of cells was assessed by MTT assay. **Results:** The silencing of PP1c resulted in increased phosphorylation level of pRb. Both KEPI and LIMK-2 include a phosphorylatable peptide sequence that is necessary for the potent inhibition of PP1. Expression of KEPI in MCF-7 cells led to its phosphorylation by endogenous kinases and inhibition of PP1 reflected in enhanced pRb-phosphorylation. Similarly, expression of LIMK-2 in HeLa cells decreased protein phosphatase activity leading to increased pRb-phosphorylation.

Conclusion: Our results indicate the essential role of PP1c in determining the phosphorylation level of pRb, which is also regulated by PP1 inhibitory proteins. Thereby PP1, LIMK-2 and KEPI could be considered as potential drug targets with therapeutic means in different kinds of malignancies.

P/2 NEW POTENTIAL BIOMARKER IN SEPSIS: SERUM ACTIN/GELSOLIN RATIO

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Keywords: actin, gelsolin, predictive value, western blot, enhanced chemiluminescence.

Introduction: Except procalcitonin, the specificity and predictive value of biochemical markers in early diagnosis and monitoring of sepsis is poor. In severe sepsis and septic shock the necrotizing cells release actin in excess into the circulation which are eliminated by plasma gelsolin and other actin binding proteins. When the amount of released actin exceeds its elimination capacity, gelsolin concentration decreases and free G-actin levels increase in the blood. Free actin promotes development of MOF and ARDS.