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一个富含谷氨酸的人类分泌蛋白基因hMGRAP的克隆与表达分析

Molecular Cloning and Characterization of hMGRAP, A Human Secreted Protein with Multiple Glutamine Repeat

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摘要

为了筛选有功能意义的新的分泌蛋白，并对其功能进行探索，采用生物信息学工具预测得到一个新的人类分泌蛋白基因hMGRAP(Human Multiple Glutamine Repeat Acidic Protein)。该基因定位于染色体7q22.1，全长cDNA为1547bp，编码含有248个氨基酸的蛋白，该蛋白富含重复的谷氨酸序列，等电点为4.6。用PCR方法从正常人的混合cDNA文库中克隆到hMGRAP。 Western blot实验表明hMGRAP能大量地从瞬时转染的cos-7细胞中分泌到细胞培养液中。RT-PCR结果显示，hMGRAP相对表达较高的组织为睾丸、骨骼肌和肾。总之，筛选并克隆到一个新的人类分泌蛋白基因hMGRAP，其生物学功能可能因其重复的谷氨酸编码序列而具有一定特殊性。Abstract: To search for human novel secreted proteins and study their biological functions, using bioinformatical tools and experimental approaches, a novel secreted protein, human hMGRAP (Human Multiple Glutamine Repeat Acidic Protein) was obtained. hMGRAP consists of six coding exons spanning 1547bp of genomic DNA on the human chromosome 7q22.1, which encodes a protein with 248 amino acids. hMGRAP is rich of glutamic acid repeated sequence and the PI is 4.6. The coding sequence of hMGRAP was cloned by PCR method from the cDNA pool composed of nine human tissues. Western blot showed that hMGRAP protein was massively secreted out from the transiently transfected Cos-7 cells. RT-PCR result indicated hMGRAP mRNA was abundantly expressed in testis. In summary, a novel human gene encoding a secreted protein hMGRAP has been screened and cloned, and its biological function may specifically relate to its repeated glutamic acid sequence.

关键词 分泌蛋白 hMGRAP 谷氨酸 Key words secreted protein hMGRAP Glutamic Acid

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