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# 粘连巨噬细胞图像的分割与描述

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摘要： 粘连细胞的分割是医学细胞图像处理中的关键，随着形态学在图像分割中的应用，分水岭分割成为粘连细胞分割中最有效的方法之一。然而，由于巨噬细胞图像中的噪声和形态的不规则性，传统分水岭算法容易产生过分割。若在经距离变换得到的距离图中提取“种子点”，并根据距离图信息得到“种子点”合并的阈值，若两“种子点”之间的距离小于阈值，则将这两“种子点”合并。若在分水岭分割中使用根据新“种子点”重新分布的距离图，实验结果表明：与传统方法相比，该算法虽然要多花费些时间，但可以有效地分割粘连巨噬细胞并抑制过分割现象。分割后，对细胞进行标记并提取细胞的特征参数，如周长、面积、圆度因子、灰度均值等。

关键词： 粘连细胞分割 分水岭 过分割 距离变换 “种子点” 特征参数

## Segmentation and Description to adhesion Macrophage Image

Abstract: Segmentation to adhesion cells is critical in image segmentation realm,with the morphology was used in image segmentation,watershed becomes one of the most efficient skills in solving adhesion cells. However,the traditional watershed algorithm is apt to cause over-segmentation for the noise and irregular shape of macrophages.If extracting the "seeding points" from the distance map,and combining some "seeding points" into more reasonable "seeding points" by a certain criterion that the neighbor "seeding points" should be combined to one "seeding point" if the distance between the two points is under threshold which is got from the information the distance map indicates.And redistribute distance map depending on the "seeding points" before watershed,the simulation results show that the algorithm can effectively segment adhesion macrophages as well as restrain the over-segmentation phenomena with a little more time compared with the traditional method.After segmentation,we can mark the numbers to the cells and abstract the characteristic parameters such as circumference、area、roundness factor 、mean gray and so on.

Keywords: segmentation to adhesion cells watershed over-segmentation distance transform "seeding points" characteristic parameters

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1．王平, 张力, 周长其.基于种子点的粘连巨噬细胞图像的分割方法[J]. 液晶与显示, 2012,(6): 808-813

2．张鹤 吴谨.基于运动信息和标记多尺度分水岭的运动目标检测算法[J]. 液晶与显示, ,(): 0-0