Abstract

Karyotyping has an important role in identifying genetic disorders due to structural changes in chromosomes. Multiplex fluorescence in-situ hybridization (M-FISH) technique provides more precise karyotyping. The new classification method, proposed in this paper, automates karyotyping, based on Fuzzy c-means (FCM) algorithm combined with a labeling chart. Classification results show that the proposed method improves accuracy and running time. It is also observed that the accuracy of classification can further be improved, using a new Reclassification algorithm which reduces the chance of wrongly classified chromosome pixels.

References

M-FISH Image Segmentation and Classification using Fuzzy Logic


- Hongbao Cao; Hong-Wen Deng; Li, M.; Yu-Ping Wang, "Classification of Multicolor Fluorescence In Situ Hybridization (M-FISH) Images With Sparse Representation", NanoBioscience, IEEE Transactions on, vol. 11, no. 2, pp. 111,118, June 2012

- Jingyao Li; Dongdong Lin; Hongbao Cao; Yu-Ping Wang, "Classification of multicolor fluorescence in-situ hybridization (M-FISH) image using structure based sparse representation", Bioinformatics and Biomedicine (BIBM), 2012 IEEE International Conference on , vol. , no. , pp. 1,6, 4-7 Oct. 2012.


- Y.-P. Wang and Ashok Kumar Dandpat. "Classification of M-FISH images using
M-FISH Image Segmentation and Classification using Fuzzy Logic


Index Terms

Computer Science
Image Processing

Keywords

Karyotyping Multiplex fluorescence in-situ hybridization (M-FISH) Fuzzy c-means Labeling

chart Reclassification