Cancer Cell Gesture Identification for Early Diagnosis

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TECHNOLOGY NEED
Cancer is one of the most life-threatening diseases in the world. As such, diagnosing whether cells are cancerous or non-cancerous plays an important role in evaluating further treatment options. However, currently available cancer diagnosing equipment cannot extract information from samples which contain either a huge number of cells or which contain low concentration of cells. Therefore, there is a need for an effective cancer diagnosis approach.

INVENTION DESCRIPTION/SOLUTION
We offer a novel predictive computational framework to diagnose cancer. It involves extracting multiple cell feature vectors from time-lapse optical images and quantifying gestures based on these features. These gestures are then compared against a database that has been trained with gestures of cancerous cells. Based on the process, the system predicts if the cells are cancerous or non-cancerous. A total of 50 characteristic features were defined and extracted. The approach was demonstrated to selectively detect metastatic human glioblastoma (hGBM) and astrocytes with an average accuracy of 85% and is one of a kind to recognize cancer by gesture analysis.

APPLICATIONS
- Cancer cell classification
- Pathology
- Life science research

KEY BENEFITS
- Extraction of 50 characteristic features
- Detection of low concentration of cancer samples
- Prediction with an accuracy of 85%

STAGE OF DEVELOPMENT
Prototype

INTELLECTUAL PROPERTY STATUS
Provisional