

Cancer is a complex and heterogeneous disease from all viewpoints. Tumoral cells populations display remarkable variability in almost every discernable phenotypic trait, including clinically important phenotypes such as ability to metastatize and to survive therapy. Recent technological advances have improved the macroscopic and microscopic understanding of this problem. In this talk, we present a summary of imaging and diagnostic techniques to tackle this issue. There is a clear and present need of every scientist for involvement in a better knowledge of cancer heterogeneity. Quantification of lesion enhancement kinetics or textural heterogeneity is a promising approach towards better cancer diagnosis and evaluation of anticancer therapy. Their limits are thoroughly discussed and new lines are proposed.

Andrés Larroza, David Moratal, Alexandra Paredes-Sánchez, Emilio Soria, María L. Chust, Leoncio A. Arribas, Estanislao Arana. Support vector machine classification of brain metastasis and radiation necrosis based on texture analysis in MRI. *J Magn Reson Imaging* 2015 (in press)