Immune-cancer interactions in tumors and tumor-draining lymph nodes: Novel prognostic indicators for breast cancer

James Mansfield1*, Peter Lee2

From Society for Immunotherapy of Cancer 29th Annual Meeting
National Harbor, MD, USA. 6-9 November 2014

It is becoming clear that immune cells play many important but sometimes conflicting roles in cancer. Immune profile changes at sites of immune-cancer interactions, such as the tumor microenvironment and tumor-draining lymph nodes (TDLNs), may represent a sensitive predictor of local and distant tumor metastasis. However, standard pathologic analysis of tumor sections has remained at the visual assessment of one marker per serial section level; it would be extremely useful to be able to visualize the distributions of multiple phenotyped immune and other cells in situ in solid tumors to dissect the complex interplay between immune/stromal cells and cancer cells within tumors, tumor-draining lymph nodes (TDLNs), and blood. We generate immune profiles that include complete immunophenotyping and identification of cellular spatial relationships within and between the tumor microenvironment and TDLNs from formalin-fixed paraffin-embedded lymph node and tumor specimens from cancer patients using a combination of multiplexed IHC/IF, multispectral imaging, and automated image analysis which delivers quantitative per-cell measures of each marker. These per-cell intensities are then translated into a phenotype for each cell. We have found that immune cell populations as well as their spatial distributions and clustering patterns have strong correlation with clinical outcome.

Authors’ details
1PerkinElmer, Hopkinton, MA, USA. 2City of Hope Comprehensive Cancer Center, CA, USA.

Published: 6 November 2014


Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at www.biomedcentral.com/submit

© 2014 Mansfield et al.; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.