

# Accepted Manuscript

Immunohistochemical and Image Analysis-based Study Demonstrate that Several Immune Checkpoints are Co-expressed in Non-Small Cell Lung Carcinoma Tumors

Edwin Roger Parra, Pamela Villalobos, Jiexin Zhang, Carmen Behrens, Barbara Mino, Stephen Swisher, Boris Sepesi, Annika Weissferdt, Neda Kalhor, John Victor Heymach, Cesar Moran, Jianjun Zhang, Jack Lee, Jaime Rodriguez-Canales, Don Gibbons, Ignacio Ivan Wistuba

PII: S1556-0864(18)30182-5

DOI: [10.1016/j.jtho.2018.03.002](https://doi.org/10.1016/j.jtho.2018.03.002)

Reference: JTHO 893

To appear in: *Journal of Thoracic Oncology*

Received Date: 20 October 2017

Revised Date: 19 February 2018

Accepted Date: 1 March 2018

Please cite this article as: Parra ER, Villalobos P, Zhang J, Behrens C, Mino B, Swisher S, Sepesi B, Weissferdt A, Kalhor N, Heymach JV, Moran C, Zhang J, Lee J, Rodriguez-Canales J, Gibbons D, Wistuba II, Immunohistochemical and Image Analysis-based Study Demonstrate that Several Immune Checkpoints are Co-expressed in Non-Small Cell Lung Carcinoma Tumors, *Journal of Thoracic Oncology* (2018), doi: 10.1016/j.jtho.2018.03.002.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Immunohistochemical and Image Analysis-based Study Demonstrate that Several Immune Checkpoints are Co-expressed in Non-Small Cell Lung Carcinoma Tumors**

<sup>1</sup> Edwin Roger Parra, <sup>1</sup> Pamela Villalobos, <sup>2</sup> Jiexin Zhang, <sup>3</sup> Carmen Behrens, <sup>1</sup> Barbara Mino, <sup>4</sup> Stephen Swisher, <sup>4</sup> Boris Sepesi, <sup>5</sup> Annika Weissferdt, <sup>5</sup> Neda Kalhor, <sup>3</sup> John Victor Heymach, <sup>5</sup> Cesar Moran, <sup>3</sup> Jianjun Zhang, <sup>2</sup> Jack Lee, <sup>1</sup> Jaime Rodriguez-Canales, <sup>3,6</sup> Don Gibbons, <sup>1,3</sup> Ignacio Ivan Wistuba.

**Authors' Affiliations:** Departments of <sup>1</sup>Translational Molecular Pathology, <sup>2</sup>Bioinformatics and Computational Biology, <sup>3</sup>Thoracic/Head and Neck Medical Oncology, <sup>4</sup>Thoracic and Cardiovascular Surgery, <sup>5</sup>Pathology, and <sup>6</sup>Molecular and Cellular Oncology, The University of Texas MD Anderson Cancer Center, Houston, Texas.

**Running title:** Immune checkpoints in NSCLC

**Keywords:** Immune checkpoints, TMA, NSCLC, image analysis

**Financial Support:** This study was supported in part by Cancer Prevention Research Institute of Texas Multi-Investigator Research Awards (RP160668; to I.I.W.), the National Institutes of Health/National Cancer Institute through The University of Texas Lung Specialized Programs of Research Excellence grant (P50CA70907; to I.I.W.) and MD Anderson's Cancer Center Support Grant (P30CA016672; used the Tissue Biospecimen and Pathology Resource, Clinical Trials Support Resource, and Biostatistics Resource Group), and an R. Lee Clark Fellow award

Download English Version:

<https://daneshyari.com/en/article/8787607>

Download Persian Version:

<https://daneshyari.com/article/8787607>

[Daneshyari.com](https://daneshyari.com)