

# **Programmable mRNA 3'UTR engineering restores MHC-I and overcomes immune evasion in prostate cancer**

**Furong Huang<sup>1,10</sup>, Fuwen Yuan<sup>1,2,10</sup>, Kexin Li<sup>1,10</sup>, Ya Cui<sup>3,10</sup>, Lei Li<sup>3,10</sup>, Wenbin Ye<sup>3,10</sup>, Zhifen Cui<sup>1</sup>, Jingyue Yan<sup>4</sup>, Qiang Chen<sup>5</sup>, Christopher Nicchitta<sup>5</sup>, Yuebao Zhang<sup>6</sup>, William Hankey<sup>1</sup>, Jeffrey Everitt<sup>1</sup>, Kai-Lieh Huang<sup>7</sup>, Mu-En Wang<sup>1</sup>, Ming Chen<sup>1</sup>, Jiaoti Huang<sup>1</sup>, Hongyan Wang<sup>1</sup>, Eric J. Wagner<sup>7</sup>, Xin Lu<sup>8</sup>, Yizhou Dong<sup>4</sup>, Wei Li<sup>3</sup> & Qianben Wang<sup>1,9</sup>**

<sup>1</sup>Department of Pathology and Duke Cancer Institute, Duke University School of Medicine, Durham, NC 27710, USA.

<sup>2</sup>Cancer Research Center, School of Integrative Medicine, Shanghai University of Traditional Chinese Medicine, Shanghai, 201203, China.

<sup>3</sup>Division of Computational Biomedicine, Department of Biological Chemistry, School of Medicine, University of California, Irvine, CA92697, USA.

<sup>4</sup>Department of Immunology and Immunotherapy and Icahn Genomics Institute, Icahn School of Medicine at Mount Sinai, New York, NY10029, USA.

<sup>5</sup>Department of Cell Biology, Duke University School of Medicine, Durham, NC27710, USA.

<sup>6</sup>Division of Pharmaceutics and Pharmacology, College of Pharmacy, The Ohio State University, Columbus, OH 43210, USA

<sup>7</sup>Department of Biochemistry & Biophysics, Center for RNA Biology, University of Rochester School of Medicine and Dentistry, Rochester, NY14642, USA.

<sup>8</sup>Department of Biological Sciences, Harper Cancer Research Institute, University of Notre Dame, Notre Dame, IN46556, USA.

<sup>9</sup>Institute of Basic Medical Sciences & School of Basic Medicine, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100005, China.