

Correction to “Suppression of Esophageal Squamous Cell Carcinoma Development by Mechanosensitive Protein Piezo1 Downregulation”

Lu Gao, Yun Ji, Lulu Wang, Meixia He, Xiaojing Yang, Yibing Qiu, Xu Sun, Zhenyu Ji, Guanrui Yang, Jianying Zhang, Shanshan Li, Liping Dai,* and Liguo Zhang*

ACS Omega 2021, 6, 15, 10196–10206 DOI: 10.1021/acsomega.1c00505



Cite This: ACS Omega 2021, 6, 13516–13517



Read Online

ACCESS |

Metrics & More

Article Recommendations

Inclusion of DOIs for references 1–39 and updates to funding information in the Acknowledgments

ACKNOWLEDGMENTS

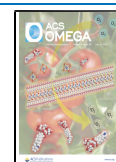
Details of the correction: In the last line of Acknowledgments, the Grant No. YYYYJK201803 in brackets is corrected to 2021BP0101.

REFERENCES

- (1) Biegging, K. T.; Mello, S. S.; Attardi, L. D. Unravelling mechanisms of p53-mediated tumour suppression. *Nat. Rev. Cancer* **2014**, *14*, 359–370.
- (2) Butcher, D. T.; Alliston, T.; Weaver, V. M. A tense situation: forcing tumour progression. *Nat. Rev. Cancer* **2009**, *9*, 108–122.
- (3) Chai, D. M.; Qin, Y. Z.; Wu, S. W.; Ma, L.; Tan, Y. Y.; Yong, X.; Wang, X. L.; Wang, Z. P.; Tao, Y. S. WISP2 exhibits its potential antitumor activity via targeting 21 ERK and E-cadherin pathways in esophageal cancer cells. *J. Exp. Clin. Cancer Res.* **2019**, *38*, 102.
- (4) Chen, J. The Cell-Cycle Arrest and Apoptotic Functions of p53 in Tumor Initiation and Progression. *Cold Spring Harbor Perspect. Med.* **2016**, *6*, a026104.
- (5) Chen, X.; Wanggou, S.; Bodalia, A.; Zhu, M.; Dong, W.; Fan, J. J.; Yin, W. C.; Min, H. K.; Hu, M.; Draghici, D.; et al. A Feedforward Mechanism Mediated by Mechanosensitive Ion Channel PIEZO1 and Tissue Mechanics Promotes Glioma Aggression. *Neuron* **2018**, *100*, 799–815.
- (6) Cinar, E.; Zhou, S.; DeCoursey, J.; Wang, Y.; Waugh, R. E.; Wan, J. Piezo1 regulates mechanotransductive release of ATP from human RBCs. *Proc. Natl. Acad. Sci. U. S. A.* **2015**, *112*, 11783–11788.
- (7) Coste, B.; Mathur, J.; Schmidt, M.; Earley, T. J.; Ranade, S.; Petrus, M. J.; Dubin, A. E.; Patapoutian, A. Piezo1 and Piezo2 Are Essential Components of Distinct Mechanically Activated Cation Channels. *Science* **2010**, *330*, 55–60.
- (8) Eisenhoffer, G. T.; Loftus, P. D.; Yoshigi, M.; Otsuna, H.; Chien, C. B.; Morcos, P. A.; Rosenblatt, J. Crowding induces live cell extrusion to maintain homeostatic 22 cell numbers in epithelia. *Nature* **2012**, *484*, 546–549.
- (9) Ferlay, J.; Soerjomataram, I.; Dikshit, R.; Eser, S.; Mathers, C.; Rebelo, M.; Parkin, D. M.; Forman, D.; Bray, F. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int. J. Cancer* **2015**, *136*, E359–E386.
- (10) Ghadirian, P.; Ekoé, J. M.; Thouez, J. P. Food habits and esophageal cancer: An overview. *Cancer Detect. Prev.* **1992**, *16*, 163–168.
- (11) Fitzmaurice, C.; Dicker, D.; Pain, A.; Hamavid, H.; Moradi-Lakeh, M.; MacIntyre, M. F.; Allen, C.; Hansen, G.; Woodbrook, R.; et al. The Global Burden of Cancer 2013. *JAMA Oncol.* **2015**, *1*, 505–527.
- (12) Gudipaty, S. A.; Lindblom, J.; Loftus, P. D.; Redd, M. J.; Edes, K.; Davey, C. F.; Krishnegowda, V.; Rosenblatt, J. Mechanical stretch triggers rapid epithelial cell division through Piezo1. *Nature* **2017**, *543*, 118–121.
- (13) Han, Y.; Liu, C.; Zhang, D. F.; Men, H. C.; Huo, L. F.; Geng, Q. W.; Wang, S. N.; Gao, Y. T.; Zhang, W.; Zhang, Y. J.; et al. Mechanosensitive ion channel Piezo1 promotes prostate cancer development through the activation of the Akt/mTOR pathway and acceleration of cell cycle. *Int. J. Oncol.* **2019**, *55*, 629–644.
- (14) Harris, S. L.; Levine, A. J. The p53 pathway: positive and negative feedback loops. *Oncogene* **2005**, *24*, 2899–2908.
- (15) Hung, W. C.; Yang, J. R.; Yankaskas, C. L.; Wong, B. S.; Wu, P. H.; Pardo-Pastor, C.; Serra, S. A.; Chiang, M. J.; Gu, Z.; Wirtz, D.; et al. Confinement Sensing and Signal Optimization via Piezo1/PKA and Myosin II Pathways. *Cell Rep.* **2016**, *15*, 1430–1441.
- (16) Ibiebele, T.; Taylor, A.; Whiteman, D.; van der Pols, J. Eating habits and risk of esophageal cancers: A population-based case-control study. *Cancer Causes Control* **2010**, *21*, 1475–1484.
- (17) Islami, F.; Pourshams, A.; Nasrollahzadeh, D.; Kamangar, F.; Fahimi, S.; Shakeri, R.; Abedi-Ardekani, B.; Merat, S.; Vahedi, H.; Semnani, S.; et al. Tea drinking habits and oesophageal cancer in a high risk area in northern Iran: population based case-control study. *BMJ.* **2009**, *338*, b929–b929.
- (18) Jiang, L.; Zhao, Y. D.; Chen, W. X. The Function of the Novel Mechanical Activated Ion Channel Piezo1 in the Human Osteosarcoma Cells. *Med. Sci. Monit.* **2017**, *23*, S070–S082.
- (19) Kim, S. E.; Coste, B.; Chadha, A.; Cook, B.; Patapoutian, A. The role of Drosophila Piezo in mechanical nociception. *Nature* **2012**, *483*, 209–212.
- (20) Li, C.; Rezanian, S.; Kammerer, S.; Sokolowski, A.; Devaney, T.; Gorischek, A.; Jahn, S.; Hackl, H.; Groschner, K.; Windpassinger, C.; et al. Piezo1 forms mechanosensitive ion channels in the human MCF-7 breast cancer cell line. *Sci. Rep.* **2015**, *5*, 8364.

Received: April 28, 2021

Published: May 14, 2021



- (21) Liu, C.; Zhu, Y.; Lou, W.; Nadiminty, N.; Chen, X.; Zhou, Q.; Shi, X. B.; deVere White, R. W.; Gao, A. C. Functional P53 Determines Docetaxel Sensitivity in Prostate Cancer Cells. *Prostate* **2013**, *73*, 418–427.
- (22) Liu, Y.; Zhi, Y.; Song, H.; Zong, M.; Yi, J.; Mao, G.; Chen, L.; Huang, G. Experimental GHJJo, and Research CC S1PR1 promotes proliferation and inhibits apoptosis of esophageal squamous cell carcinoma through activating STAT3 pathway. *J. Exp. Clin. Cancer Res.* **2019**, *38*, 1–15.
- (23) Murthy, S. E.; Dubin, A. E.; Patapoutian, A. Piezos thrive under pressure: mechanically activated ion channels in health and disease. *Nat. Rev. Mol. Cell Biol.* **2017**, *18*, 771–783.
- (24) Nicholson, D. W.; Ali, A.; Thornberry, N. A.; Vaillancourt, J. P.; Ding, C. K.; Gallant, M.; Gareau, Y.; Griffin, P. R.; Labelle, M.; Lazebnik, Y. A.; et al. Identification and 25 inhibition of the ICE/CED-3 protease necessary for mammalian apoptosis. *Nature* **1995**, *376*, 37–43.
- (25) Patel, K.; Wakhisi, J.; Mining, S.; Mwangi, A.; Patel, R. Esophageal Cancer, the Topmost Cancer at MTRH in the Rift Valley, Kenya, and Its Potential Risk Factors. *ISRN Oncol.* **2013**, *2013*, 503249.
- (26) Pejin, B.; Jovanovic, K.; Mojovic, M.; Savic, A. New and highly potent antitumor natural products from marine-derived fungi: covering the period from 2003 to 2012. *Curr. Top. Med. Chem.* **2013**, *13*, 2745–2766.
- (27) Srivastava, M.; Kapil, U.; Chattopadhyaya, T. K.; Shukla, N. K.; Gnanasekaran, N.; Jain, G. L.; Joshi, Y. K.; Nayar, D. Nutritional risk factors in carcinoma esophagus. *Nutr. Res. (N. Y., NY, U. S.)* **1995**, *15*, 177–185.
- (28) Sun, Y.; Li, M.; Liu, G.; Zhang, X.; Zhi, L.; Zhao, J.; Wang, G. The function of Piezo1 in colon cancer metastasis and its potential regulatory mechanism. *J. Cancer Res. Clin. Oncol.* **2020**, *146*, 1139–1152.
- (29) Suzuki, T.; Muraki, Y.; Hatano, N.; Suzuki, H.; Muraki, K. PIEZO1 Channel Is a Potential Regulator of Synovial Sarcoma Cell Viability. *Int. J. Mol. Sci.* **2018**, *19*, 1452.
- (30) Träger, M. M.; Dhayat, S. A. Epigenetics of epithelial-to-mesenchymal transition in pancreatic carcinoma. *Int. J. Cancer* **2017**, *141*, 24–32.
- (31) Vay, C.; Hosch, S. B.; Stoecklein, N. H.; Klein, C. A.; Vallbohmer, D.; Link, B. C.; Yekebas, E. F.; Izbicki, J. R.; Knoefel, W. T.; Scheunemann, P. Integrin expression in esophageal squamous cell carcinoma: loss of the physiological integrin expression pattern correlates with disease progression. *PLoS One* **2014**, *9*, No. e109026.
- (32) Wang, J.-F.; Kan, Q.-B. The insufficient prognostic power of stenosis in patients with esophageal cancer. *Int. J. Clin. Oncol.* **2017**, *22*, 1050–1051.
- (33) Wang, K.; Cai, L.-H.; Lan, B.; Fredberg, J. J. Hidden in the mist no more: physical force in cell biology. *Nat. Methods* **2016**, *13*, 124–125.
- (34) Weng, C. Y.; Chen, Y.; Wu, Y.; Liu, X.; Mao, H. B.; Fang, X. S.; Li, B. X.; Wang, L. N.; Guan, M. M.; Liu, G. L.; et al. Silencing UBE4B induces nasopharyngeal carcinoma apoptosis through the activation of caspase3 and p53. *OncoTargets Ther.* **2019**, *12*, 2553–2561.
- (35) Wu, J.; Lewis, A. H.; Grandl, J. Touch, Tension, and Transduction – The Function and Regulation of Piezo Ion Channels. *Trends Biochem. Sci.* **2017**, *42*, 57–71.
- (36) Yu, H.; Mouw, J. K.; Weaver, V. M. Forcing form and function: biomechanical regulation of tumor evolution. *Trends Cell Biol.* **2011**, *21*, 47–56.
- (37) Zhang, J. L.; Zhou, Y. H.; Huang, T. T.; Wu, F.; Liu, L. P.; Kwan, J. S. H.; Cheng, A. S. L.; Yu, J.; To, K. F.; Kang, W. PIEZO1 functions as a potential oncogene by promoting cell proliferation and migration in gastric carcinogenesis. *Mol. Carcinog.* **2018**, *57*, 1144–1155.
- (38) Zhang, L.; Liu, X.; Gao, L.; Ji, Y.; Wang, L.; Zhang, C.; Dai, L.; Liu, J.; Ji, Z. Activation of Piezo1 by ultrasonic stimulation and its effect on the permeability of human umbilical vein endothelial cells. *Biomed. Pharmacother.* **2020**, *131*, 110796.
- (39) Zhang, Y.; Miao, Y.; Shang, M.; Liu, M.; Liu, R.; Pan, E.; Pu, Y.; Yin, L. LincRNA-p21 leads to G1 arrest by p53 pathway in esophageal squamous cell carcinoma. *Cancer Manage. Res.* **2019**, *11*, 6201–6214.