



## Cannabis smoking is associated with advanced epigenetic age

## Ana I. Hernandez Cordero <sup>1,2</sup>, Xuan Li<sup>1</sup>, Chen Xi Yang <sup>1</sup>, Amirtha Ambalavanan<sup>3</sup>, Julie L. MacIsaac<sup>2,4</sup>, Michael S. Kobor<sup>2,4</sup>, Dany Doiron<sup>5</sup>, Wan Tan<sup>1</sup>, Jean Bourbeau <sup>5</sup>, Don D. Sin<sup>1,2,6</sup>, Qingling Duan <sup>3,7,8</sup> and Janice M. Leung<sup>1,2,6,8</sup>, the CanCOLD Collaborative Research Group

<sup>1</sup>Centre for Heart Lung Innovation, St. Paul's Hospital and University of British Columbia, Vancouver, BC, Canada. <sup>2</sup>Edwin S.H. Leong Healthy Aging Program, Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada. <sup>3</sup>Department of Biomedical and Molecular Sciences, School of Medicine, Queen's University, Kingston, ON, Canada. <sup>4</sup>Centre for Molecular Medicine and Therapeutics, University of British Columbia, Vancouver, BC, Canada. <sup>5</sup>McGill University Health Centre, McGill University, Montreal, QC, Canada. <sup>6</sup>Division of Respiratory Medicine, Department of Medicine, University of British Columbia, Vancouver, BC, Canada. <sup>7</sup>School of Computing, Queen's University, Kingston, ON, Canada. <sup>8</sup>Q. Duan and J.M. Leung contributed equally as senior authors.

Corresponding author: Janice M. Leung (Janice.Leung@hli.ubc.ca)

Check for updates	Shareable abstract (@ERSpublications) Current cannabis smoking is significantly associated with faster peripheral blood epigenetic age acceleration; interestingly, cannabis smoking cessation is shown to normalise this age acceleration signal. https://bit.ly/3x7s2CU
	<b>Cite this article as:</b> Hernandez Cordero AI, Li X, Yang CX, <i>et al</i> . Cannabis smoking is associated with advanced epigenetic age. <i>Eur Respir J</i> 2024; 63: 2400458 [DOI: 10.1183/13993003.00458-2024].
	This extracted version can be shared freely online.
Copyright ©The authors 2024. This version is distributed under the terms of the Creative Commons Attribution Non- Commercial Licence 4.0. For commercial reproduction rights and permissions contact permissions@ersnet.org Received: 16 Sept 2023 Accepted: 18 March 2024	To the Editor: Cannabis use has been controversial, largely having been designated a controlled substance over the past century. While certain studies have linked cannabis smoking with harmful effects such as increased respiratory symptoms and faster lung function decline in older adults [1, 2], these findings have not been fully replicated by others [3]. The link between cannabis and disease pathogenesis may best be explored through DNA methylation. This mechanism consists of the addition or removal of a methyl group at a cytosine–guanine residue (CpG), can be influenced by exposures, and can modify transcription. Methylation changes can accumulate over time in patterns that are highly associated with age, leading to the development of epigenetic clocks that can estimate biological age [4].

Ο