

<b>Paper Category:</b>	Basic Science
<b>Paper Title:</b> (Arial Font; 14 Pt Size)	A novel set of volatile urinary biomarkers for sarcopenia
<b>Abstract Body:</b> (Arial Font; 12Pt Size)	<ul style="list-style-type: none"> <li>• Background</li> <li>• Objectives</li> <li>• Method</li> <li>• Results</li> <li>• Discussions and Conclusions</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Background</b> The development of biomarkers of sarcopenia is expected to contribute to understanding the pathogenesis and accurate diagnosis of sarcopenia. Recently odorants have attracted attention as potential disease biomarkers, offering a non-invasive diagnostic approach. These holds promise for the application of diagnostic technologies targeting elderly individuals, particularly those with conditions such as sarcopenia, where access to diagnosis is challenging.</li> <li>• <b>Objectives</b> The objective is to identify non-invasive biomarkers that can diagnose sarcopenia or capture changes in symptoms. To determine the maker, volatile organic compounds (VOCs) in urine from sarcopenia and healthy control were analysed.</li> <li>• <b>Method</b> We conducted headspace SPME-GCMS analysis of urine samples from elderly individuals residing in Tokyo, aiming to detect VOCs in urine. A comparison was made between 68 sarcopenia patients and 71 healthy individuals, and specific VOCs associated with sarcopenia were identified. Using the non-standardized predicted (PRE-1) values of three combined VOCs for each participant, we performed ROC analysis to evaluate the discriminatory ability of VOCs for sarcopenia. And then, subjects underwent a comprehensive diagnosis, including sarcopenia assessment, and the results of each diagnosis were compared and analysed with VOC markers.</li> <li>• <b>Results</b> We identified 10 VOCs as candidate biomarkers in urine. P-xylene, 1-butanol, d-limonene, nonanal increased, pyrrole, texanol, octanoic acid and nonanoic acid, medium-chain fatty acids, diisobutyl phthalate, γ-butyrolactone levels were significantly different between sarcopenia patients and controls. Combined ROC analysis revealed that the area under the curve (AUC) was almost all 0.9 in combined 3VOCs composed of nonanal, octanoic acid, and nonanoic acid in males, indicating that at least sarcopenia can be discriminated with high accuracy in males.</li> <li>• <b>Discussions and Conclusions</b> We identified ten urinary VOC compounds as candidate biomarkers for sarcopenia. The ROC analysis of combined four VOC compounds showed high performance in non-standardized predicted values, suggesting the potential for non-invasive diagnosis of sarcopenia.</li> </ul>	

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