

## Synthesis of elastin crosslinker merodesmosine

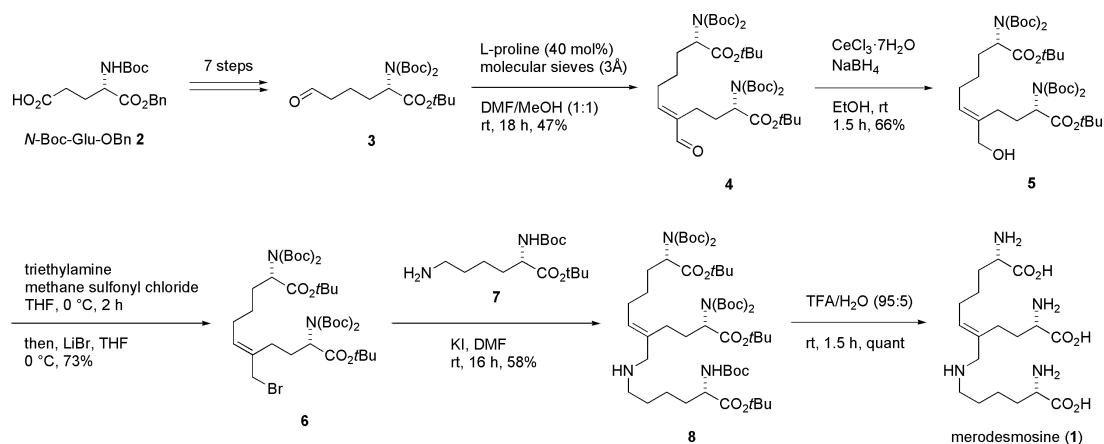
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Elastin is an important protein responsible for elasticity of cells and tissues in animal bodies. The significant feature of elastin is that it has cross-linking structures and elasticity appears by these three-dimensional structures. Desmosine and isodesmosine are known as major cross-linking amino acids and the total syntheses have already been achieved in our laboratory.<sup>1,2)</sup> Merodesmosine (**1**) is one of the estimated cross-linking amino acids of elastin and was first isolated in 1967 by Starcher and co-workers.<sup>3)</sup> Estimated structure including *E-Z* configuration remains unclear and the total synthesis has not been achieved to date. Therefore, in this study, synthesis of merodesmosine was examined.

Starting from commercially available *N*-Boc-Glu-OBn **2**, aldehyde **3** was prepared in seven steps,<sup>2,4)</sup> which was then subjected to aldol condensation,<sup>5)</sup> then Luche reduction to afford allylic alcohol intermediate **5**. Obtained **5** was then converted to allylic bromide **6** through mesylation followed by Finkelstein reaction. S<sub>N</sub>2 reaction between **6** and Boc-Lys-*O**t*Bu **7** was conducted and global deprotection of all the *t*Bu and Boc groups furnished **1**.

Succeeding in total synthesis would aid us to know the complete structure of merodesmosine and not only that, it would also allow us to do the quantitative analysis in elastin.



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