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## **Doubly tethered tertiary amide linked and ionically bonded diproline chiral stationary phases**

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### **ABSTRACT**

Oligoproline chiral stationary phase (CSP) is a new class peptide chiral stationary phase. Many proline chiral stationary phases with different proline chain lengths and linkers have been prepared and evaluated. However, the doubly tethered and ionic type linkers have not been adequately investigated. In this study, covalently and ionically bonded chiral stationary phases with doubly tethered linker were prepared and characterized. The new covalently bonded doubly tethered diproline CSP was applied successfully to resolve various enantiomers of acidic, basic, and neutral compounds with phenyl, naphthyl, anthryl, or similarly sized groups. The enantio-recognition performances of singly and doubly tethered diproline CSPs were comparable. Variation of the type and content of organic modifiers in hexane or heptane mobile phase showed that the branch alcohols such as 2-propanol and 2-butanol, 1,2-dichloroethane, methyl tert-butyl ether, and ethyl acetate in the mobile phase enhanced chiral separation. End-capping on doubly tethered diproline CSP did not always improve the separation factor and resolution. Due to the rigid structure of the double tether, the enantioseparation ability of ionically bonded diproline CSP was well expressed to some analytes.

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