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Di- and Trisubstituted γ -Lactams via Rh(II)-carbenoid Reaction of *N*-C $_{\alpha}$ -Branched, *N*-Bis(trimethylsilyl)methyl α -Diazoamides. Synthesis of (\pm)- α -Allokainic Acid

$$\begin{array}{c}
 \text{R} \\
 \diagup \\
 \text{C}=\text{N}_2 \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{BTMSM}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}
 \xrightarrow[\text{R = H or Ac}]{\text{Rh}_2\text{Ln}}
 \begin{array}{c}
 \text{R} \\
 \diagup \\
 \text{C} \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{BTMSM}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}
 \xrightarrow[\text{R}^2 = \text{Piv}]{\begin{array}{l} \text{R} = \text{Ac} \\ \text{R}^1 = \text{CH}_2\text{C}_6\text{H}_4\text{OMe-4} \end{array}}
 \begin{array}{c}
 \text{R} \\
 \diagup \\
 \text{C} \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{BTMSM}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}
 +
 \begin{array}{c}
 \text{R} \\
 \diagup \\
 \text{C} \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{BTMSM}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}
 +
 \begin{array}{c}
 \text{R} \\
 \diagup \\
 \text{C} \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{BTMSM}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}$$

$$\begin{array}{c}
 \text{C} \\
 \diagup \\
 \text{C} \\
 \diagdown \\
 \text{O} \\
 | \\
 \text{N} \\
 | \\
 \text{H}
 \end{array}
 \begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{OR}^2
 \end{array}
 \begin{array}{c}
 \text{CO}_2\text{H} \\
 | \\
 \text{CH}_2 \\
 | \\
 \text{CO}_2\text{H}
 \end{array}$$

$$(\pm)\text{-}\alpha\text{-Allokainic acid}$$

$$\text{BTMSM} = (\text{Me}_3\text{Si})_2\text{CH}$$