Significance: A novel method for preparing alkylmagnesium reagents has been disclosed. Alkenes undergo a hydroboration with subsequent boron–magnesium exchange to yield the corresponding primary and secondary alkylmagnesium reagents. These organometallic reagents can be used in a wide range of carbon–carbon bond-forming reactions.

Comment: The key for an efficient boron–magnesium exchange is the use of a pinacolborolane and a 1,4-dimagnesium reagent. The byproducts formed in the course of the exchange reaction did not disturb various subsequent reactions like alkylations, 1,2-additions as well as transition-metal-catalyzed cross-coupling reactions.

Selected products obtained after trapping of prepared alkylmagnesium reagents:

- n-Oct CO₂Et: 84% yield
- n-Oct OH: 83% yield
- n-Oct Ph: 91% yield
- n-Oct Ph: 91% yield
- Ph CO₂Et: 86% yield
- Ph CO₂Et: 76% yield

R = various primary and secondary alkyl;
E = various electrophiles

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**Category**
Metal-Mediated Synthesis

**Key words**
boranes
C–C coupling
Grignard reaction

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