Neoproterozoic intraplate bimodal magmatism along the western margin of the Siberian Craton: implications for breakup of the Rodinia supercontinent

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The Yenisei Ridge fold-and-thrust belt is a key to understand the Precambrian tectonic evolution of the Siberian Craton [1,2]. Intraplate magmatism represented by felsic and mafic dyke swarms along the western margin of the Siberian Craton is identified. A rift-related origin for the rocks studied is favored based on their common occurrence as dikes and sills in narrow linear zones along the faults, bimodal composition of the magmatic rock associations, and geochemical characteristics indicating their affinity to intraplate settings [3]. Zircon SHRIMP U-PB analyses and $^{40}Ar/^{39}Ar$ geochronology of mica from the dykes constrain the timing of emplacement of the dykes as 797–792 Ma [4,5].

The magmatic event at *c.*800 Ma along the western margin of the Siberian craton and other continental blocks can be correlated with the onset of the breakup of the Neoproterozoic Rodinia supercontinent [6]. These Neoproterozoic extensional tectonic events provide the upper age limit for the collisional metamorphism that took place at the final stage of orogeny. Post-Grenville episodes of regional crustal evolution are correlated with the synchronous successions and similar style within the Valhalla orogen along the Arctic margin of Rodinia and supports the spatial proximity of Siberia and North Atlantic cratons (Laurentia, Baltica, Svalbard) at *c.*800 Ma [7,8], as also indicated by the Neoproterozoic paleocontinental reconstructions of the Rodinia configuration [9,10].

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