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Development of CSSLs carrying chromosomal segments of Peking in the background of the Japanese soybean Enrei

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Using progeny of a cross between Japanese soybean Enrei and Chinese soybean Peking, we developed chromosomal segment substitution lines (CSSLs). To cover the entire soybean genome, we used 999BC₃F₂ backcross plants and selected a set of 103 CSSLs carrying chromosomal segments from Peking in the genetic background of Enrei. Using these low-genetic-complexity resources, we dissected variation in traits related to flowering, maturity and yield into approximately 50 reproducible QTLs and evaluated QTLs with small genetic effects as single genetic factors in a uniform genetic background. CSSLs developed in this study may be good starting material for removing the unfavorable characteristics of Peking during pre-breeding and for isolation of genes conferring disease and stress resistance that have not yet been characterized.