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Cover Story Tartary buckwheat (*Fagopyrum tataricum*) is a functional food crop rich in flavonoids, including rutin and other bioactive compounds with documented health benefits. However, its molecular breeding has long been hampered by poor regenerative capacity and low genetic transformation efficiency. In this study, we identified an elite germplasm, G253, which exhibits exceptional capacity for morphogenic callus (MC) induction and proliferation when cultured from immature zygotic embryos. Using this highly responsive MC as an efficient recipient, we established two complementary transformation platforms. First, an *Agrobacterium*-mediated stable transformation system achieved a positive rate exceeding 90% and produced fully regenerated transgenic plants with stable transgene expression. Second, a rapid protoplast transient transformation system was developed from the same MC, achieving nearly 20% transformation efficiency with high protoplast viability. The cover image illustrates this dual-platform strategy: Immature embryos of G253 are used to induce morphogenic callus, which then serves as the starting material for both stable plant transformation and PEG-mediated protoplast transformation. This work represents a breakthrough in overcoming recalcitrance in Tartary buckwheat, providing critical germplasm and technological support for accelerating functional genomics and biofortification breeding. This cover picture was provided by Prof. Meiliang Zhou and MSc Zhen Wang from Chinese Academy of Agricultural Sciences, China. For more details, please see pages 3090–3093.