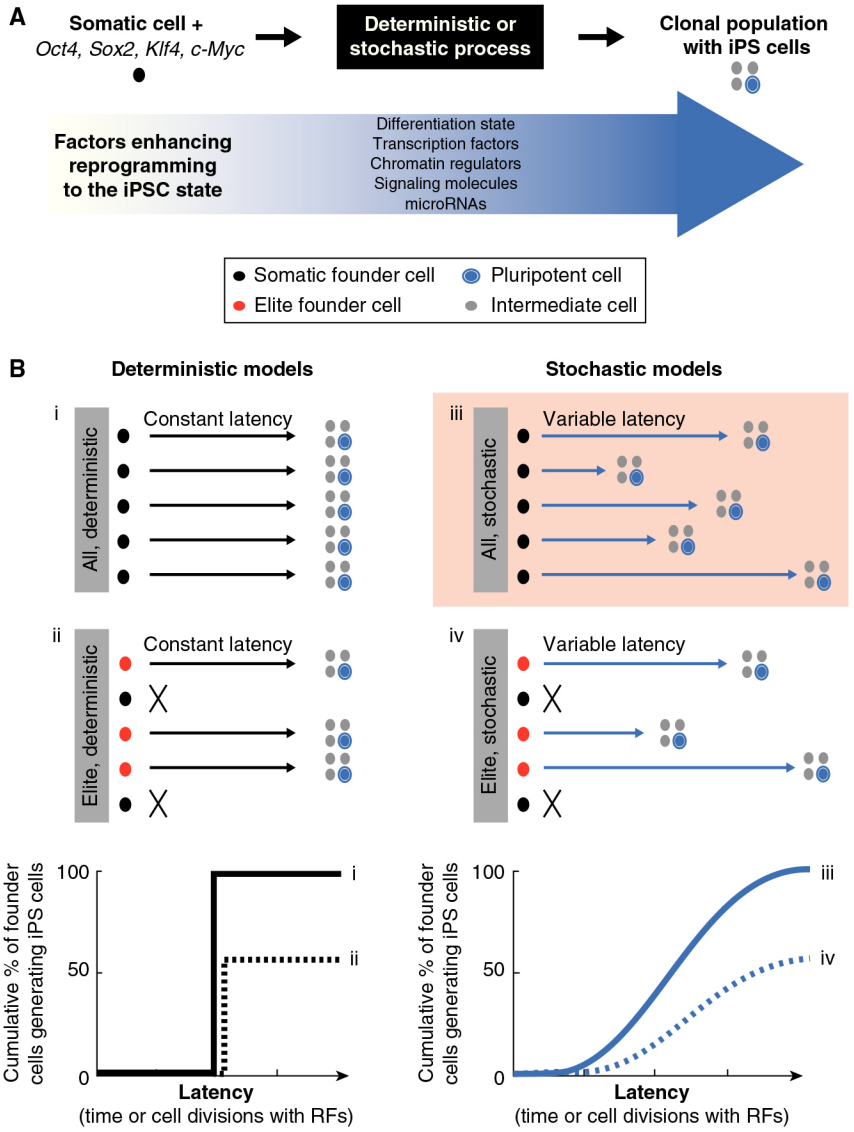

Figure 5. Stochastic and deterministic models of cellular reprogramming into iPSCs. (*A*) Schematic representation of the reprogramming process. (*B*) Representation of four possible models to explain the low efficiency of reprogramming. The deterministic model posits that (i) all somatic cells or (ii) a subset of somatic cells termed elite founder cells gives rise to iPSCs with the same predetermined latency. In contrast, the stochastic model predicts that (iii) all cells or (iv) a subpopulation of "elite" cells produces iPSCs with different latencies. Latency can be measured in elapsed time or number of cell divisions necessary to activate pluripotency genes. Expected outcomes for the individual models are shown at the bottom. Experimental evidence using clonal B cell and monocyte populations supports a stochastic model of type "iii" (highlighted; see text for details). RFs, reprogramming factors. (Modified, with permission, from Hanna et al. 2009b.)