

Table 1 Genetic characteristics of parent cells and their trans-mitochondrial cybrids

Cell lines ^a	Nuclear genotypes (genetic marker) ^b	mtDNA genotypes	Fusion combination			Selection
			nuclear donors	×	mtDNA donors	
Nuclear donors						
ρ^0 P29	P29 (HAT ^r , BrdU ^s)	mtDNA less				
mtDNA donors						
B82mtP29	B82 (HAT ^s , BrdU ^r)	Wild type	ρ^0 B82	×	en ^c P29	BrdU + UP ⁻
B82mtA11	B82 (HAT ^s , BrdU ^r)	G13997A	ρ^0 B82	×	enA11	BrdU + UP ⁻
B82mt Δ	B82 (HAT ^s , BrdU ^r)	Δ mtDNA4696	ρ^0 B82	×	platelets	UP ⁻
Trans-mitochondrial cybrids						
P29mtP29	P29 (HAT ^r , BrdU ^s)	Wild type	ρ^0 P29	×	enB82mtP29	HAT + UP ⁻
P29mtA11	P29 (HAT ^r , BrdU ^s)	G13997A	ρ^0 P29	×	enB82mtA11	HAT + UP ⁻
P29mt Δ	P29 (HAT ^r , BrdU ^s)	Δ mtDNA4696	ρ^0 P29	×	enB82mt Δ	HAT + UP ⁻

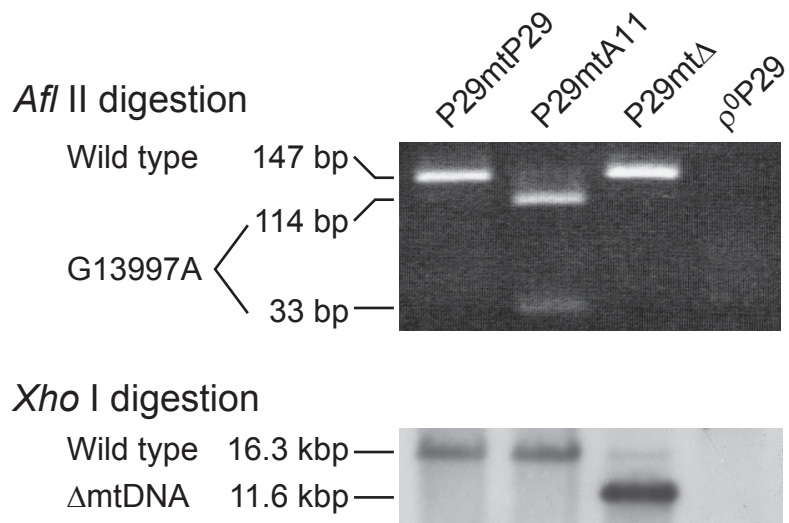
a As mtDNA donors, we used B82mtP29, B82mtA11, and B82mt Δ cybrids shearing the same nuclear background of B82 cells for excluding variations of nuclear-coded cytoplasmic factors in mtDNA donors. B82mtP29 cybrids carrying nuclear DNA from B82 cells and mtDNA from P29 cells were obtained by fusion of ρ^0 B82 cells with enucleated P29 cells and subsequent cultivation in the selection medium with BrdU and UP⁻. ρ^0 B82 cells can survive in the selection medium with BrdU due to their lacking thymidine kinase activity, and cannot survive in the selection medium without uridine and pyruvate (UP⁻ medium) due to their lacking mtDNA. Thus, BrdU and UP⁻ eliminate unenucleated P29 cells and unfused ρ^0 B82 cells, respectively, and allow exclusive growth of the B82mtP29 cybrids. B82mt Δ cybrids carrying nuclear DNA from B82 cells and Δ mtDNA4696 were obtained by fusion of ρ^0 B82 cells with platelets from mito-mice carrying Δ mtDNA4696 [23] in the UP⁻ selection medium. As G13997A mtDNA donors, we used B82mtA11 cybrids obtained in our previous work [16].

b All the mtDNA donors sharing the B82 nuclear background lacking thymidine kinase activity cannot survive in the presence of a hypoxanthine/aminopterin/thymidine (HAT). On the contrary, nuclear donors ρ^0 P29 cells can grow in the HAT selection medium due to their possessing thymidine kinase activity, but not in UP⁻ selection medium due to their complete respiration defects by mtDNA depletion. Thus, HAT and UP⁻ allow exclusive growth of the P29mtP29, P29mtA11, and P29mt Δ cybrids.

c en represents enucleated.

Figure 1

A



B

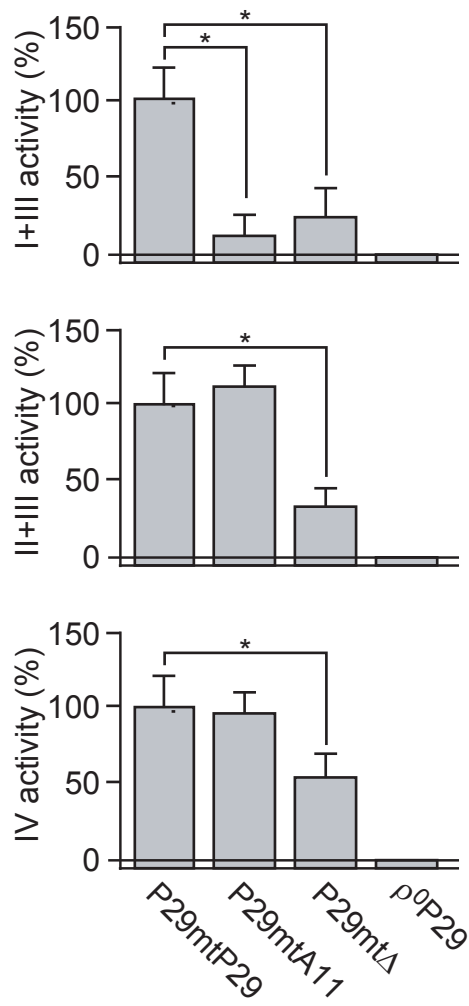


Figure 2

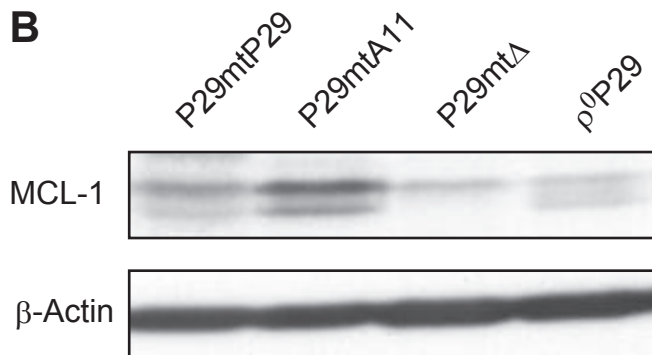
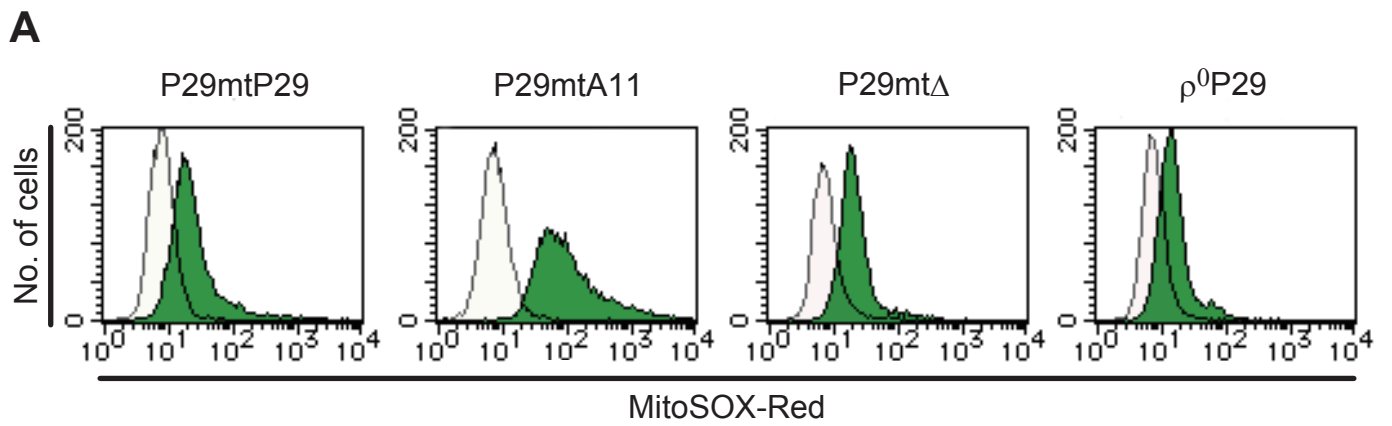


Figure 3

