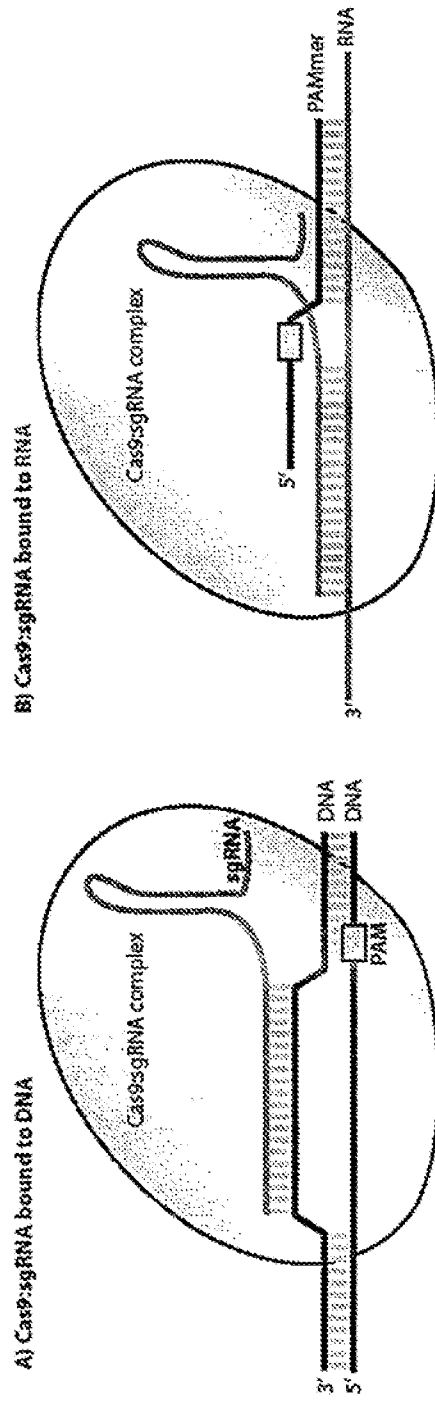


*FIG. 1*

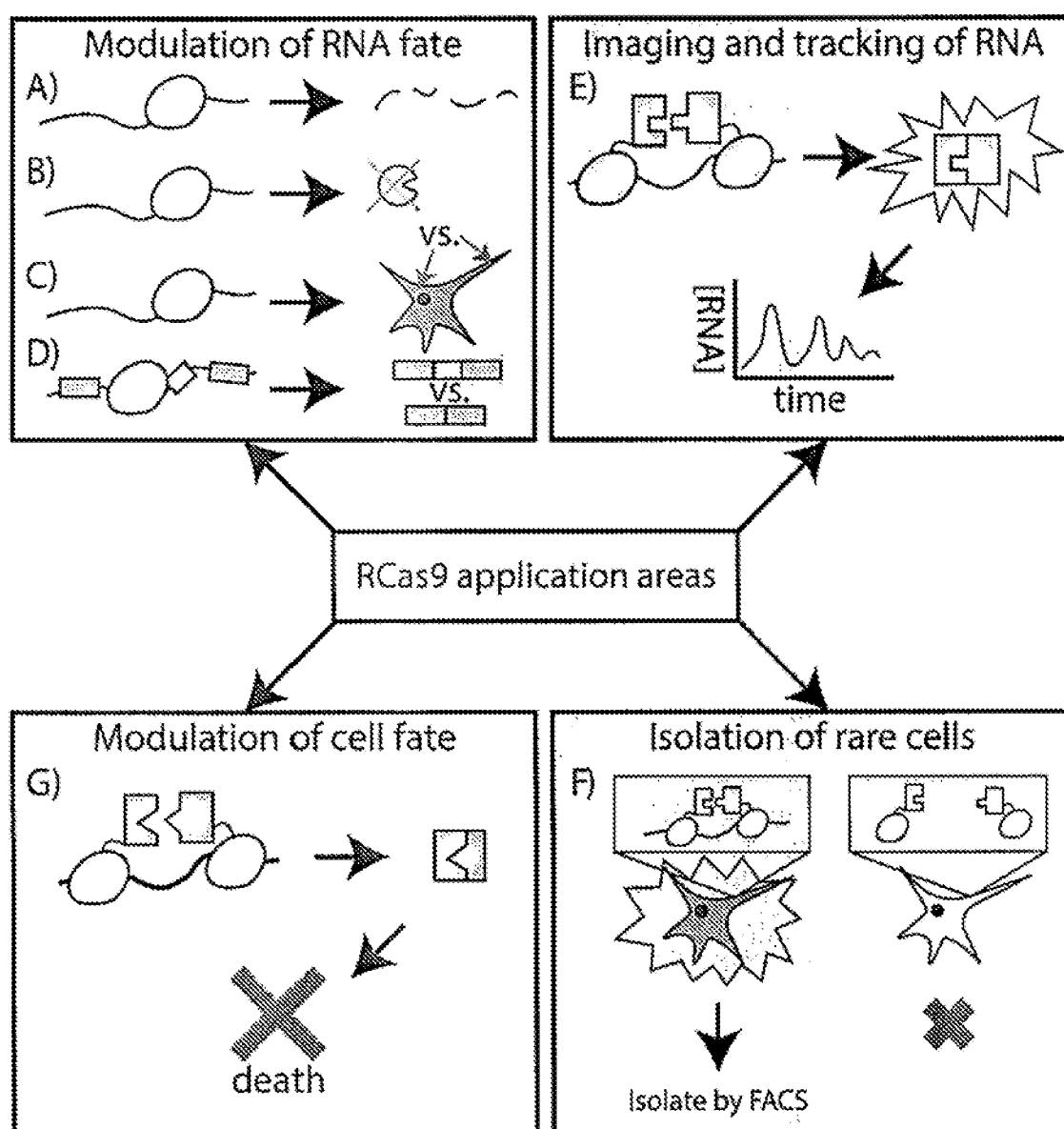


FIG. 2

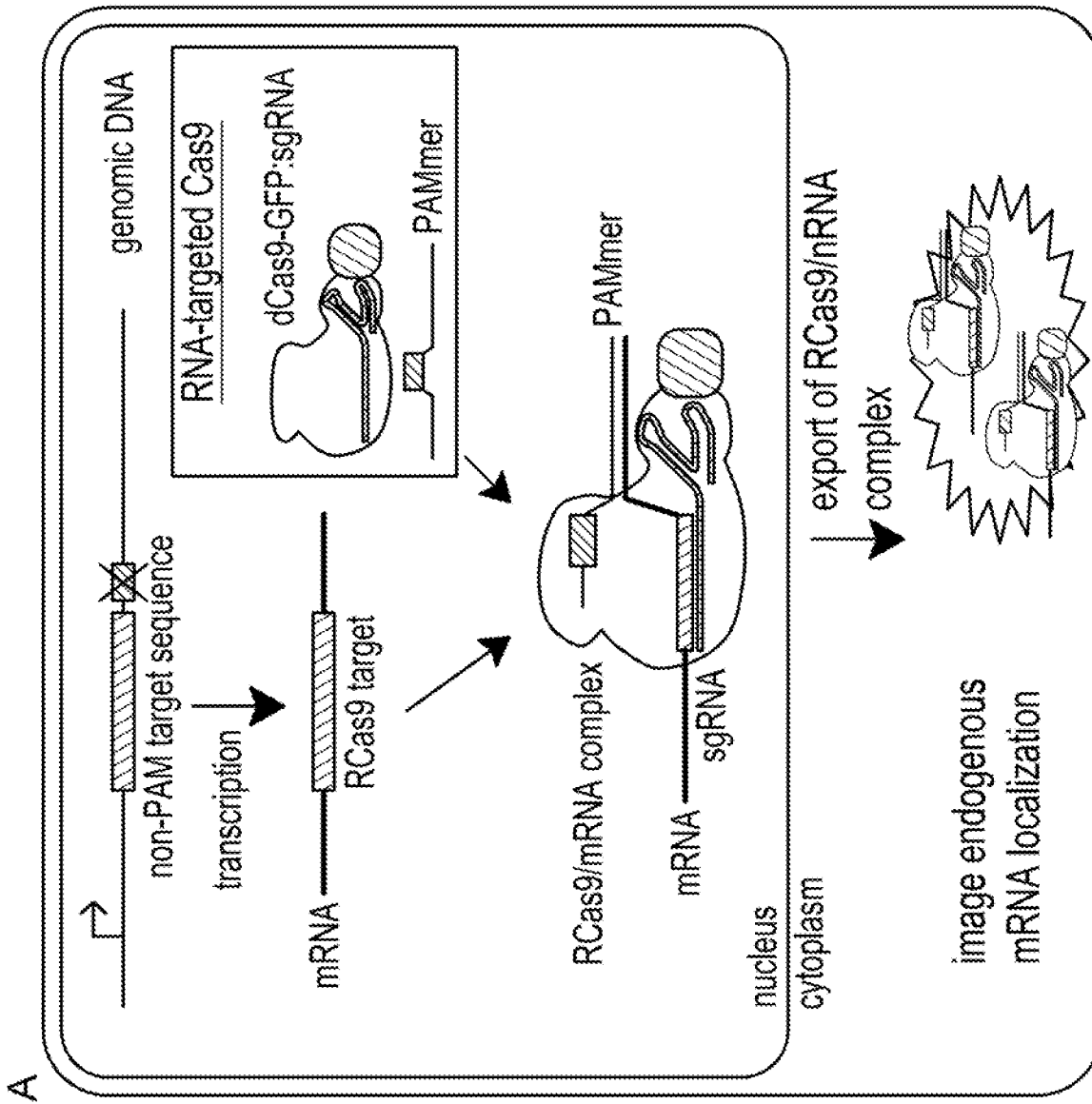


FIG. 3

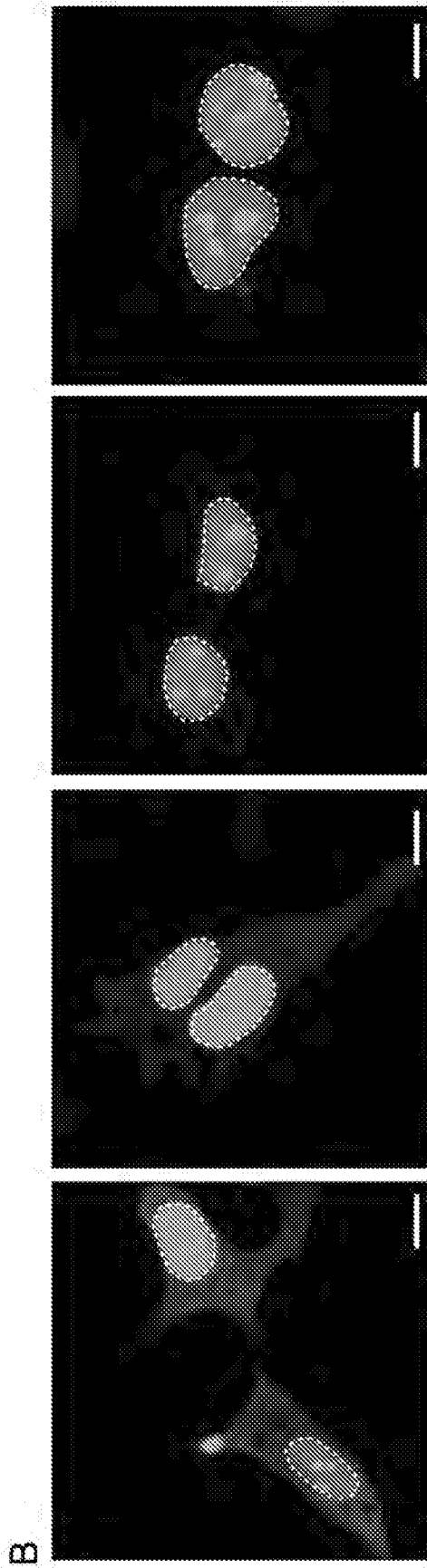
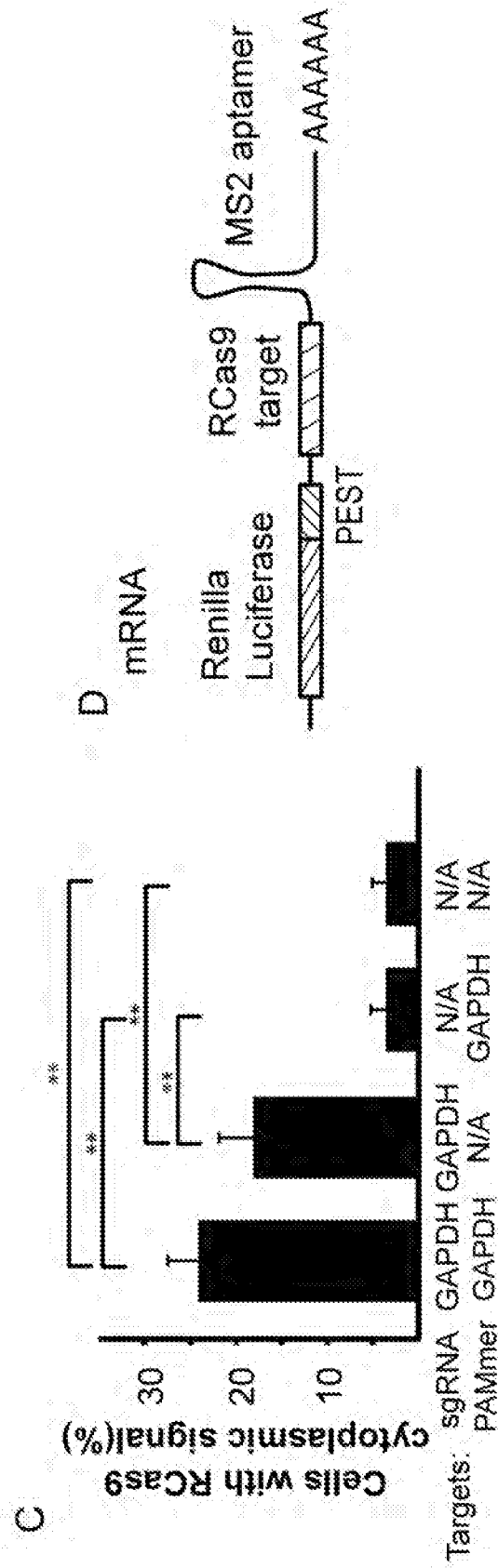


FIG. 3

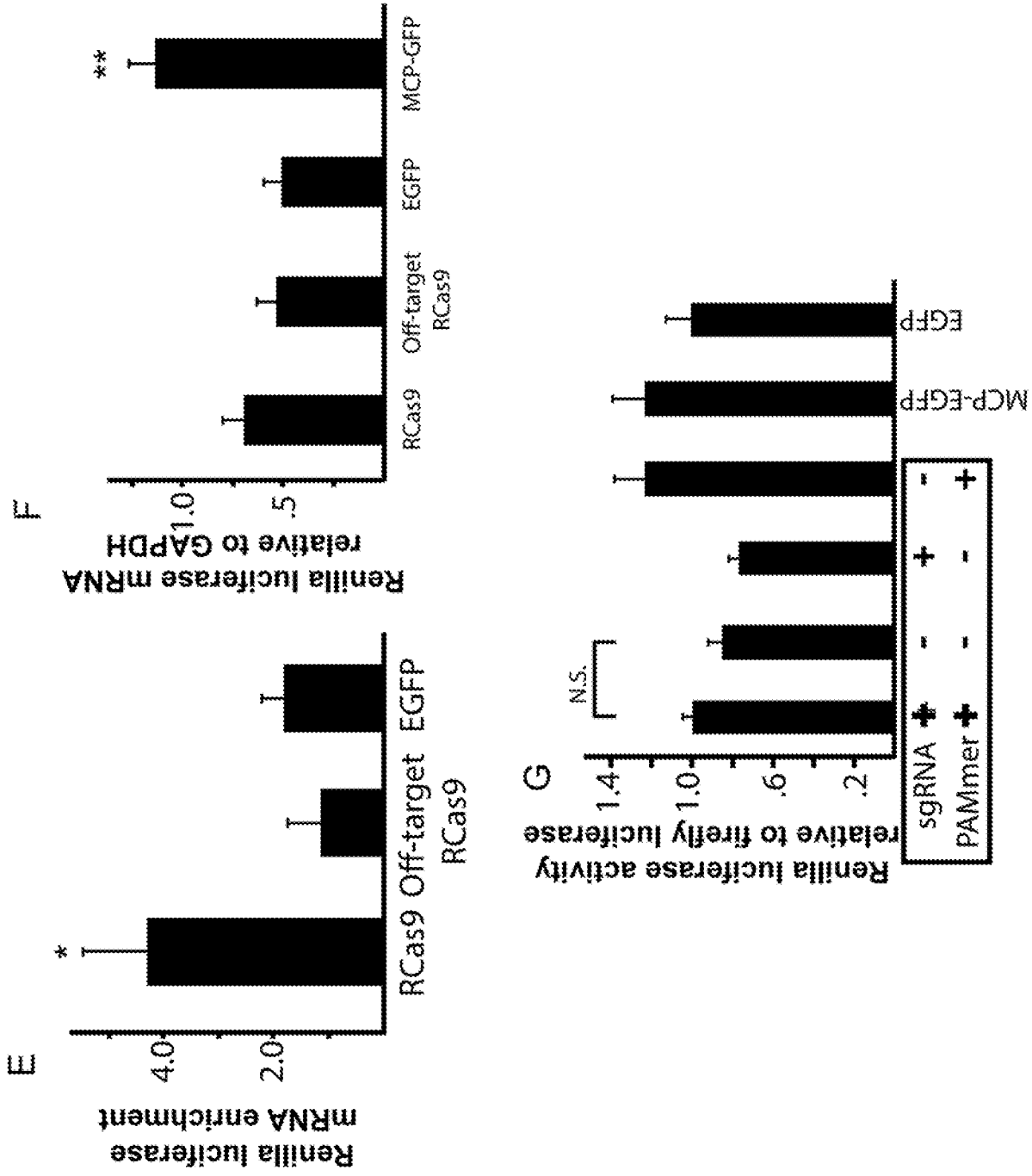


FIG. 3

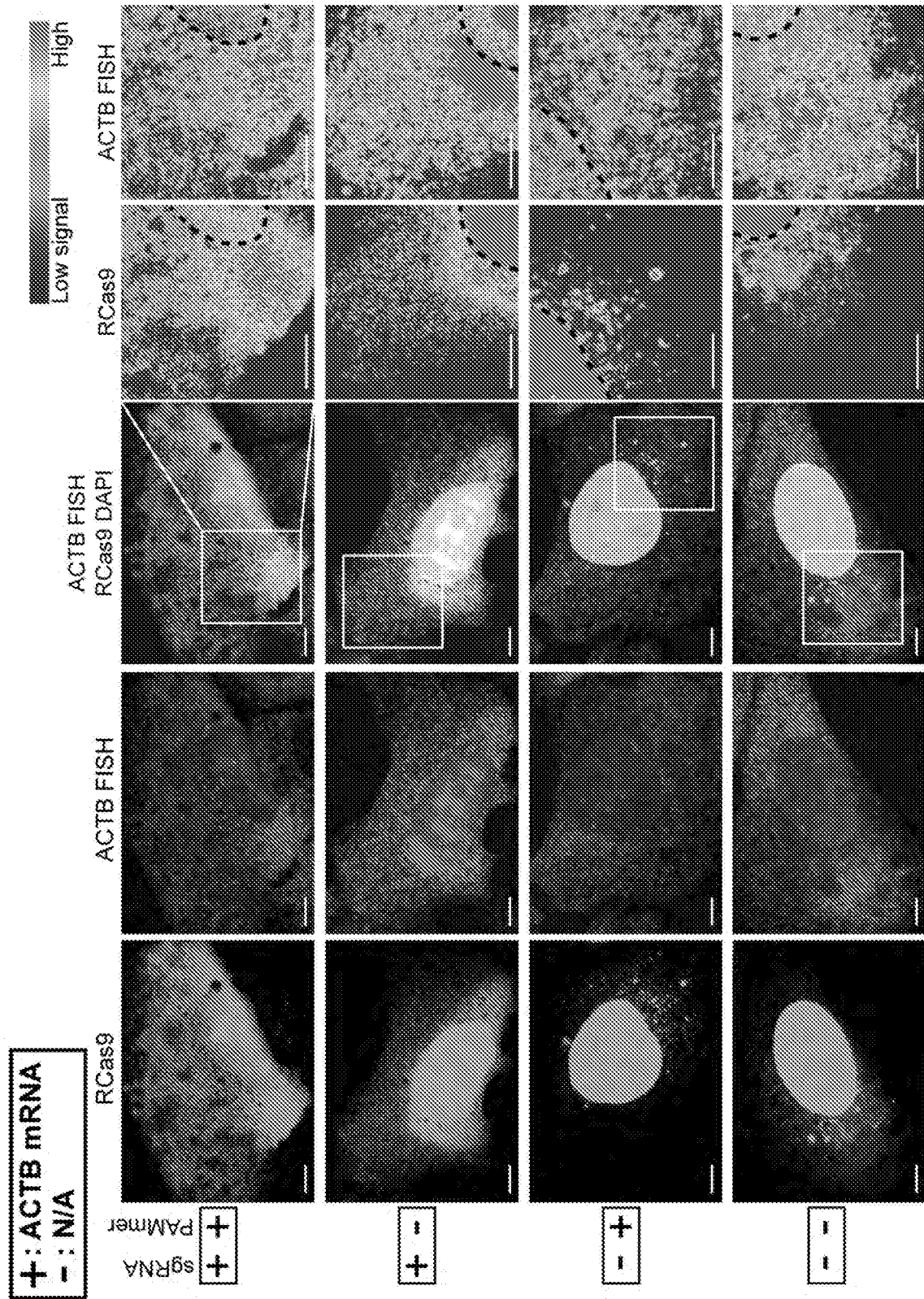


FIG. 4A

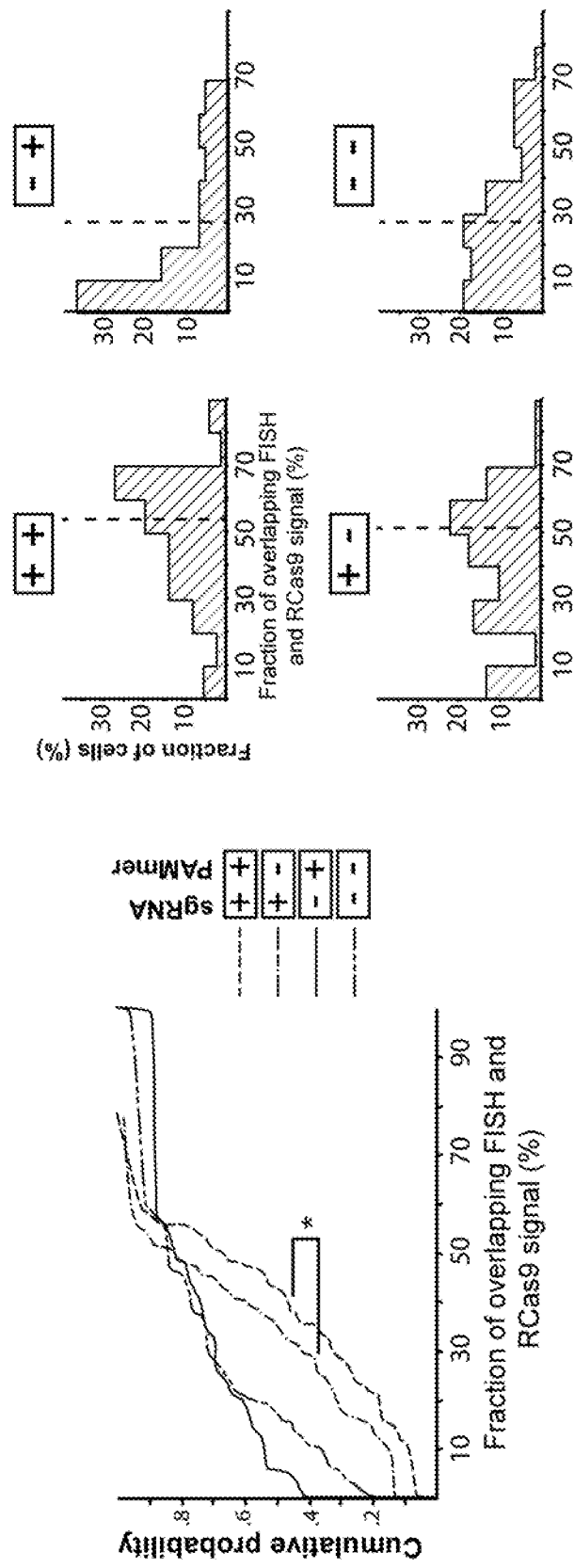


FIG. 4B

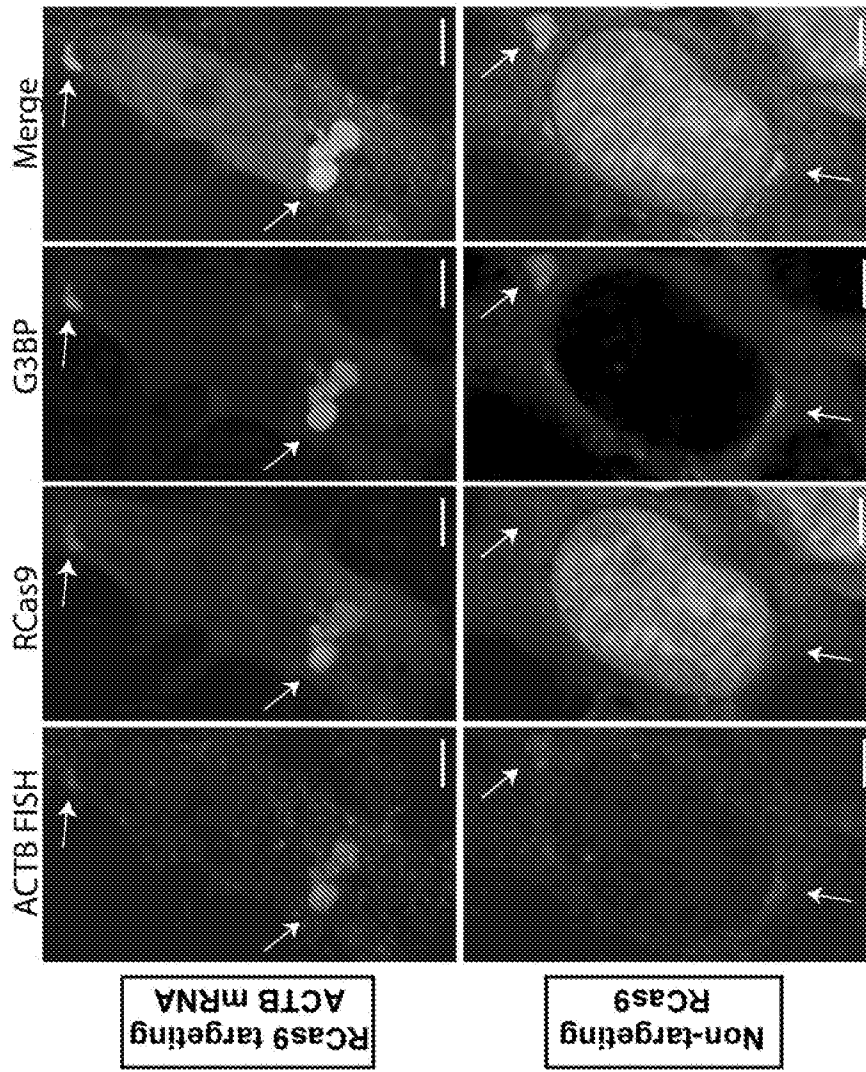
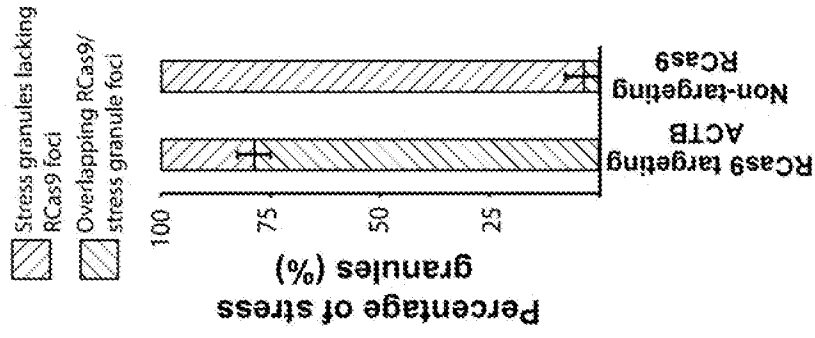


FIG. 5B

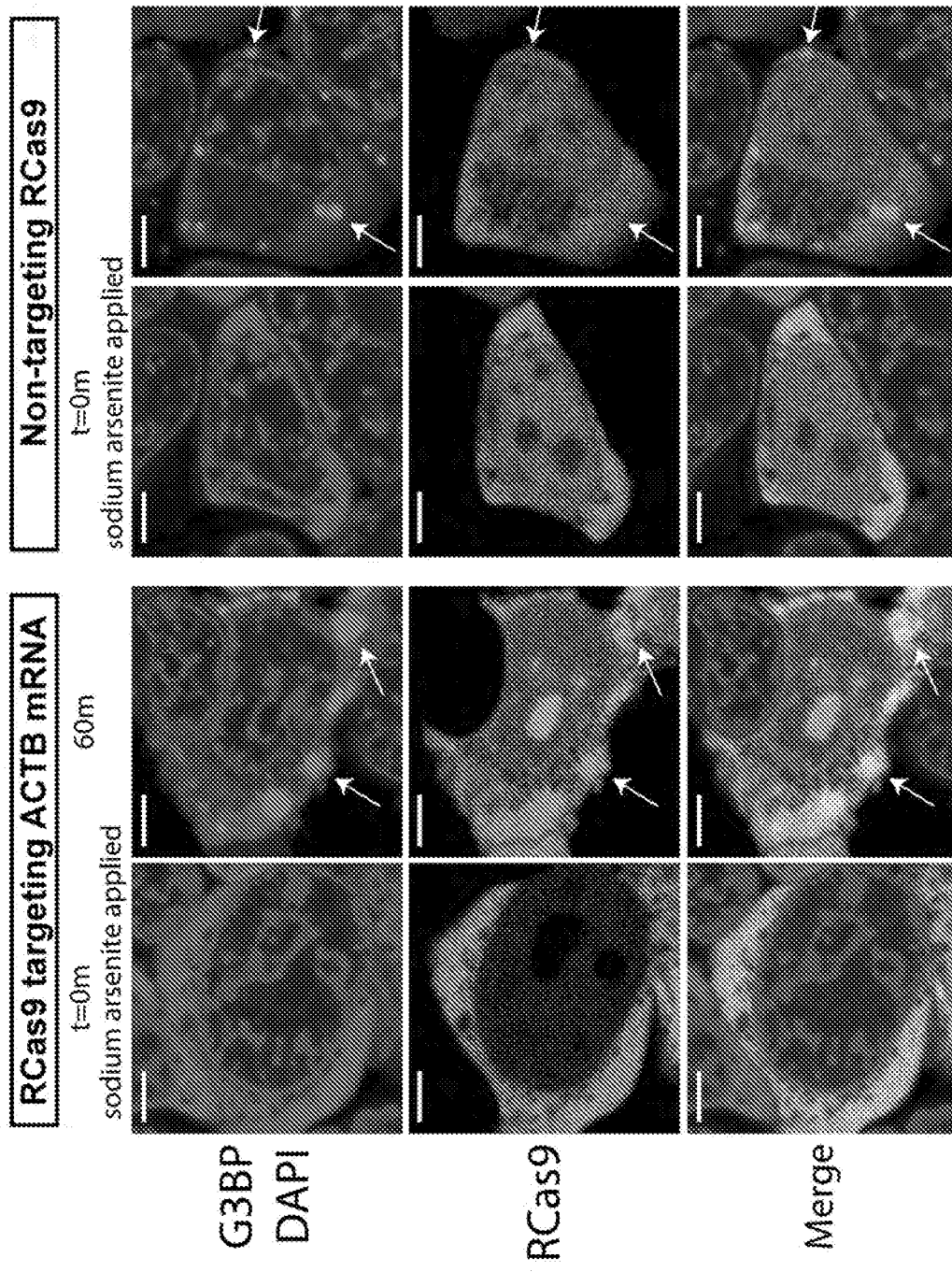


FIG. 5C

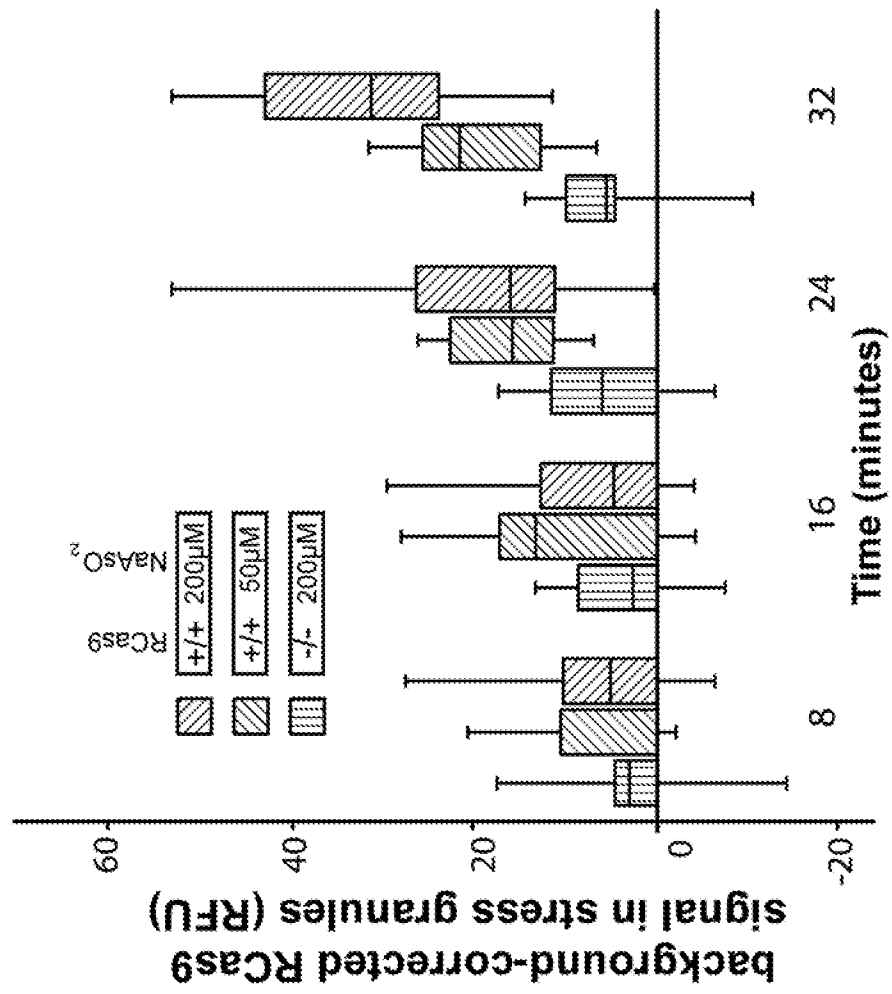


FIG. 5D

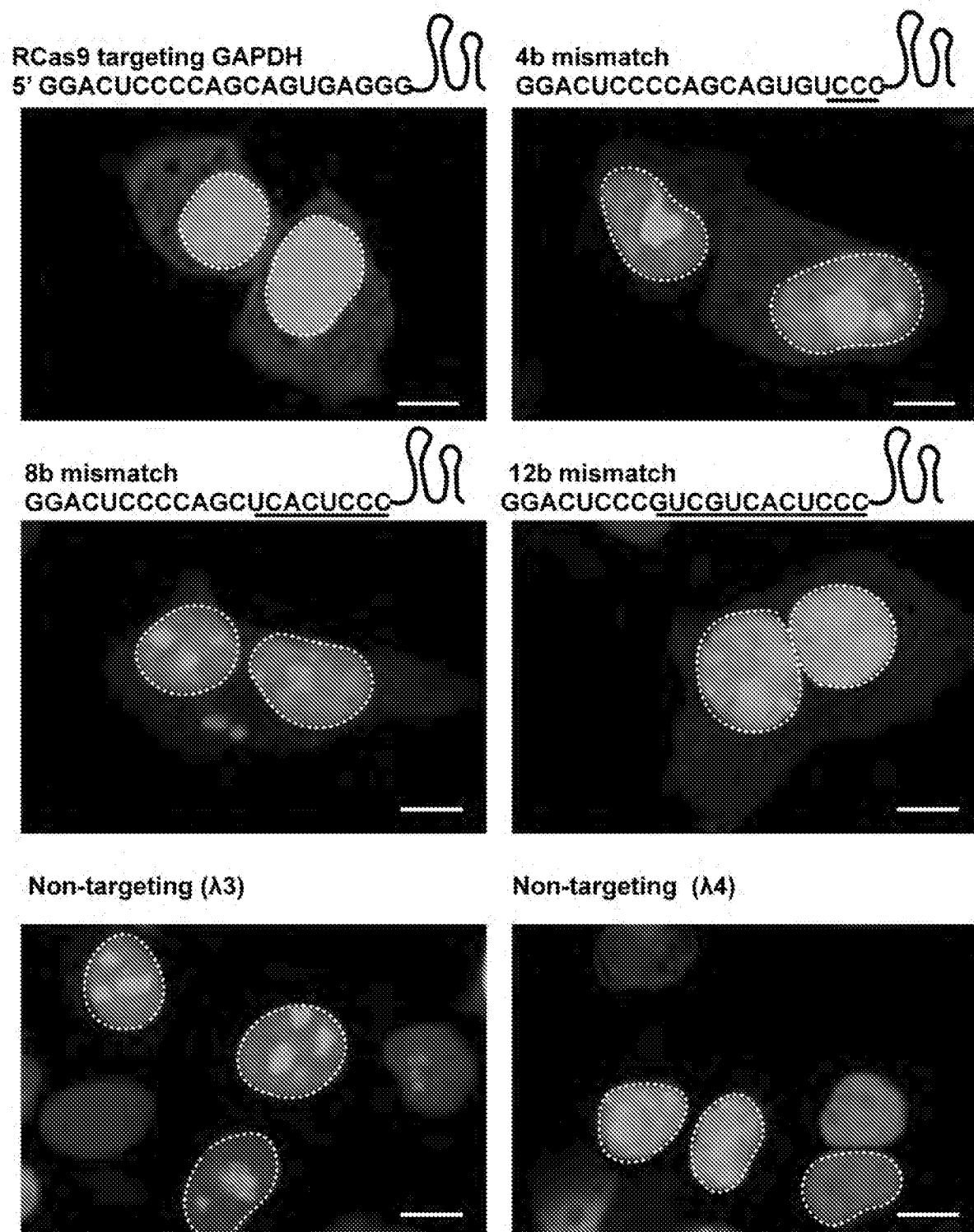


FIG. 6

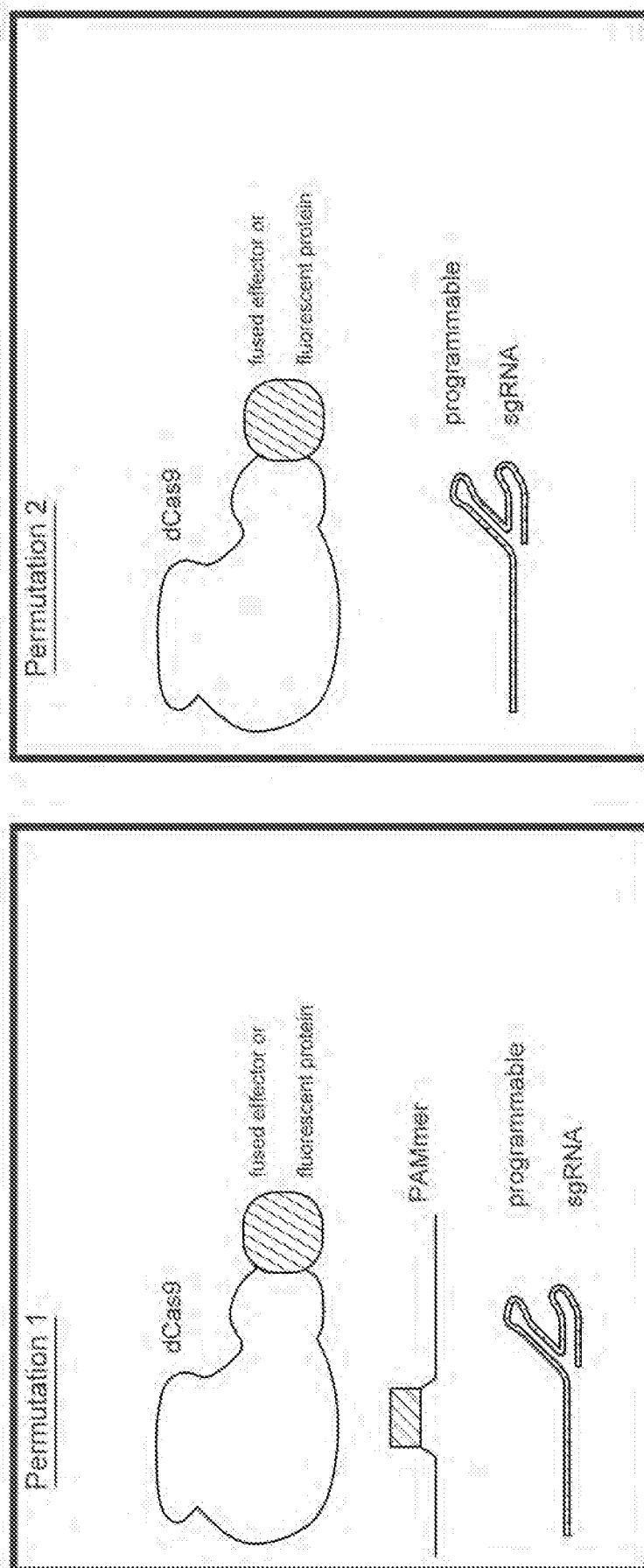


FIG. 7A1

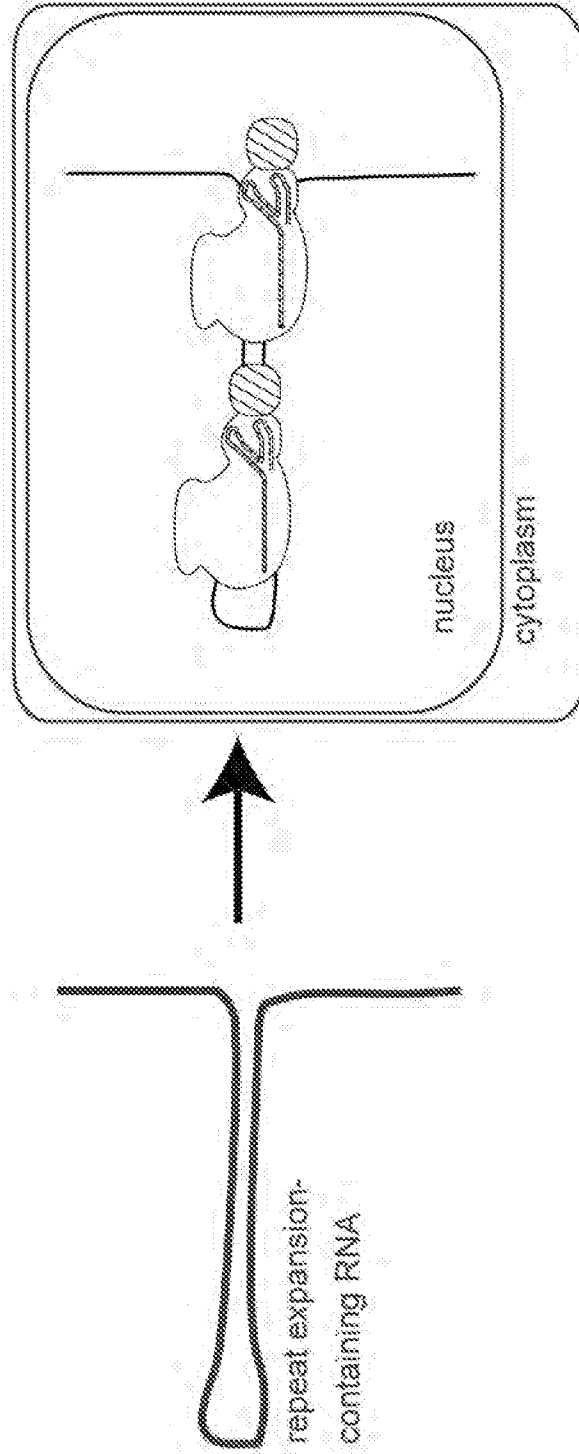
Use case 1: Tracking repeat RNAs

Utility: myotonic dystrophy, Huntington's, familial ALS,

Fragile X syndrome diagnostics and research

Permutation: 1 or 2, fused effector is a fluorescent protein,

sgRNA targets CTG, CCTG, CAG, GGGGCC, etc repeat RNAs



RCas9 system binds and reveals presence, location, and movement of repeat-containing RNAs in the nucleus OR cytoplasm

FIG. 7A2

Use case 2: Destroying repeat RNAs

Utility: myotonic dystrophy, Huntington's, familial ALS,

Fragile X syndrome therapeutic

Permutation: 1 or 2, fused effector is an endonuclease,

sgRNA targets CTG, CCTG, CAG, GGGGCC, etc repeat RNAs

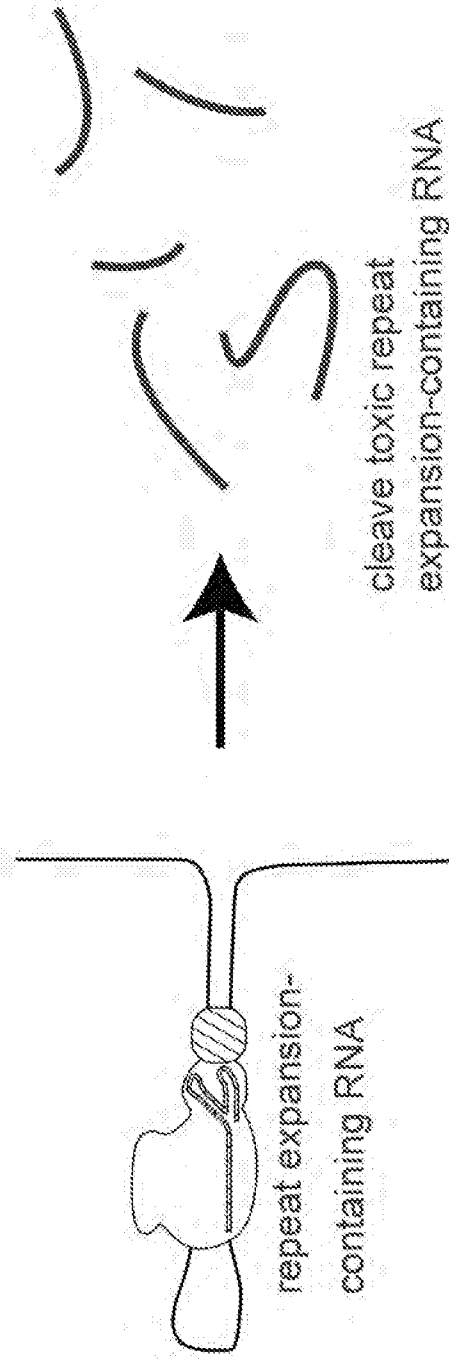


FIG. 7A3

Use case 3: Alter RNA splicing

Utility: cancer, SMA research and therapeutic

Permutation: 1 or 2, fused effector is an splicing factor
sgRNA targets pre-mRNA sequence

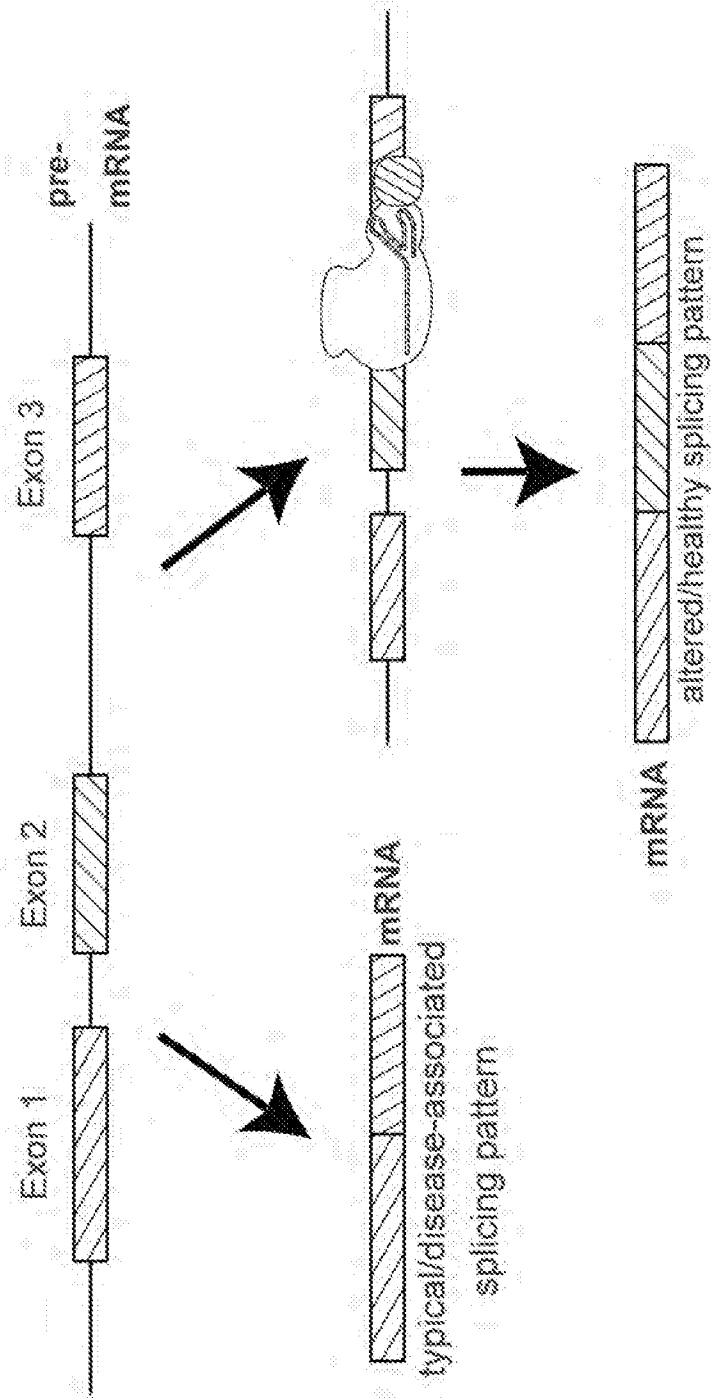


FIG. 7A4

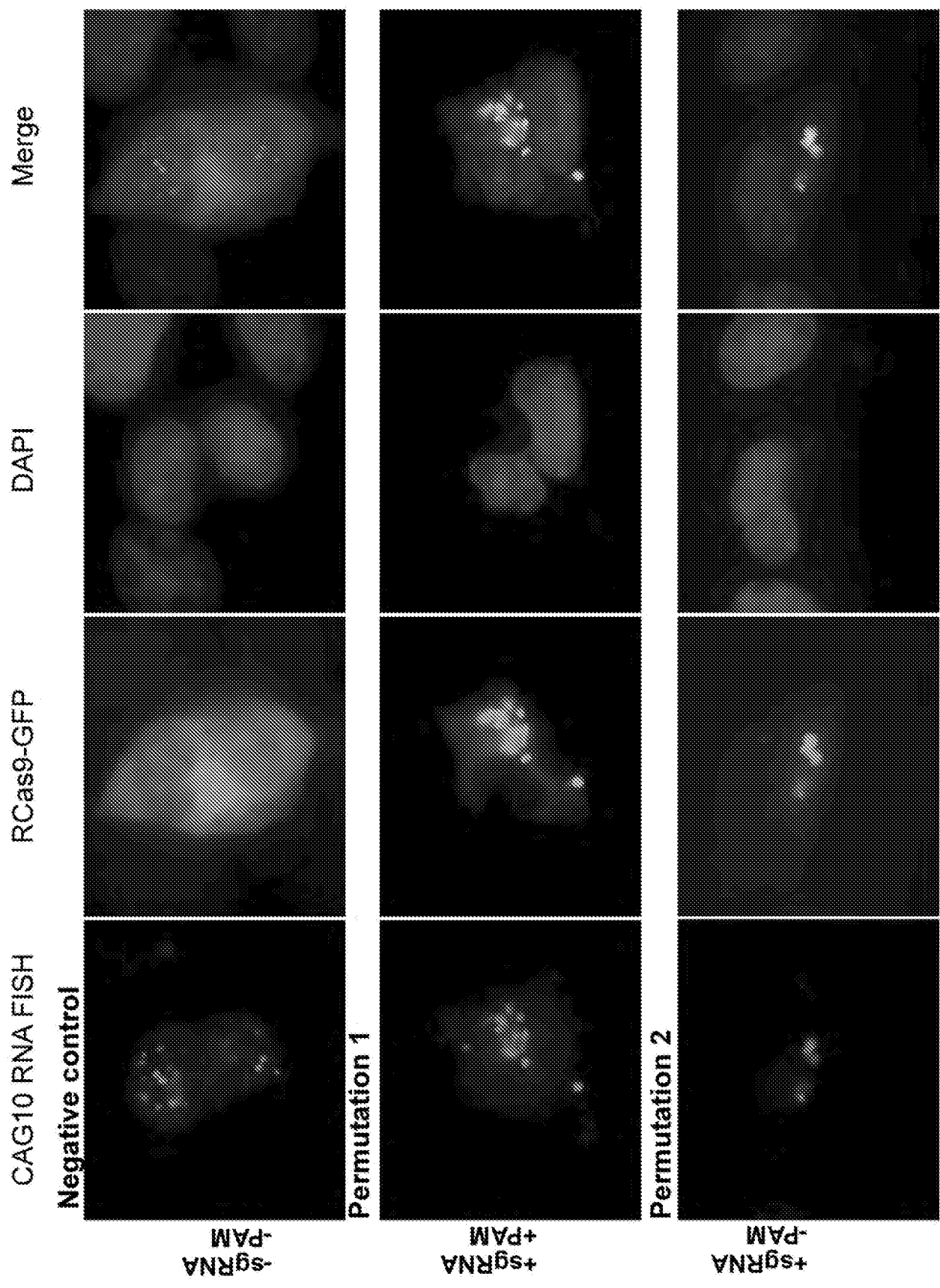


FIG. 7B

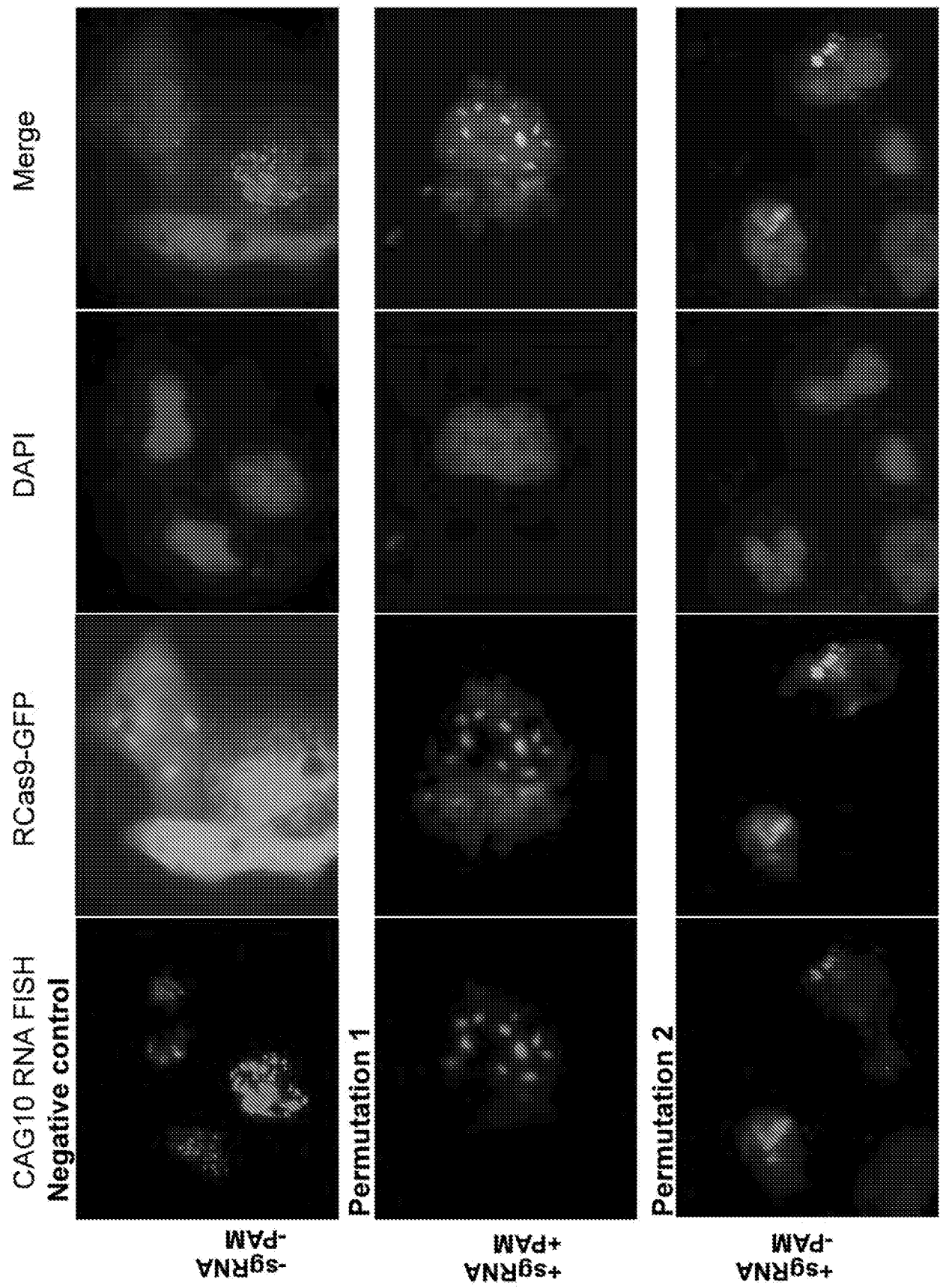


FIG. 7C

Use case 2: Destroying repeat RNAs

Utility: myotonic dystrophy, Huntington's, familial ALS,

Fragile X syndrome therapeutic

Permutation: 1 or 2, fused effector is an endonuclease,

sgRNA targets CTG, CCTG, CAG, GGGGCC, etc repeat RNAs

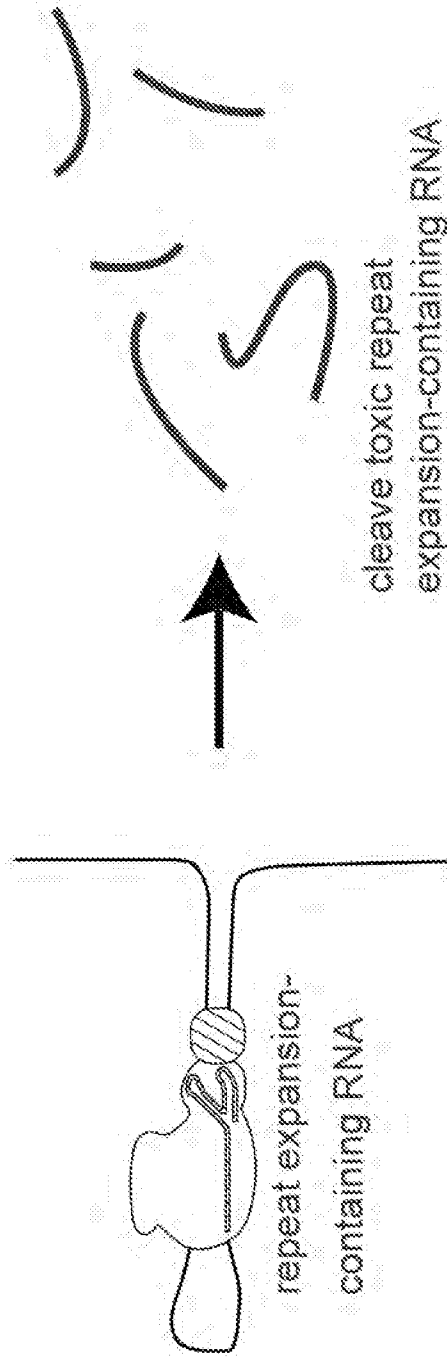


FIG. 7D1

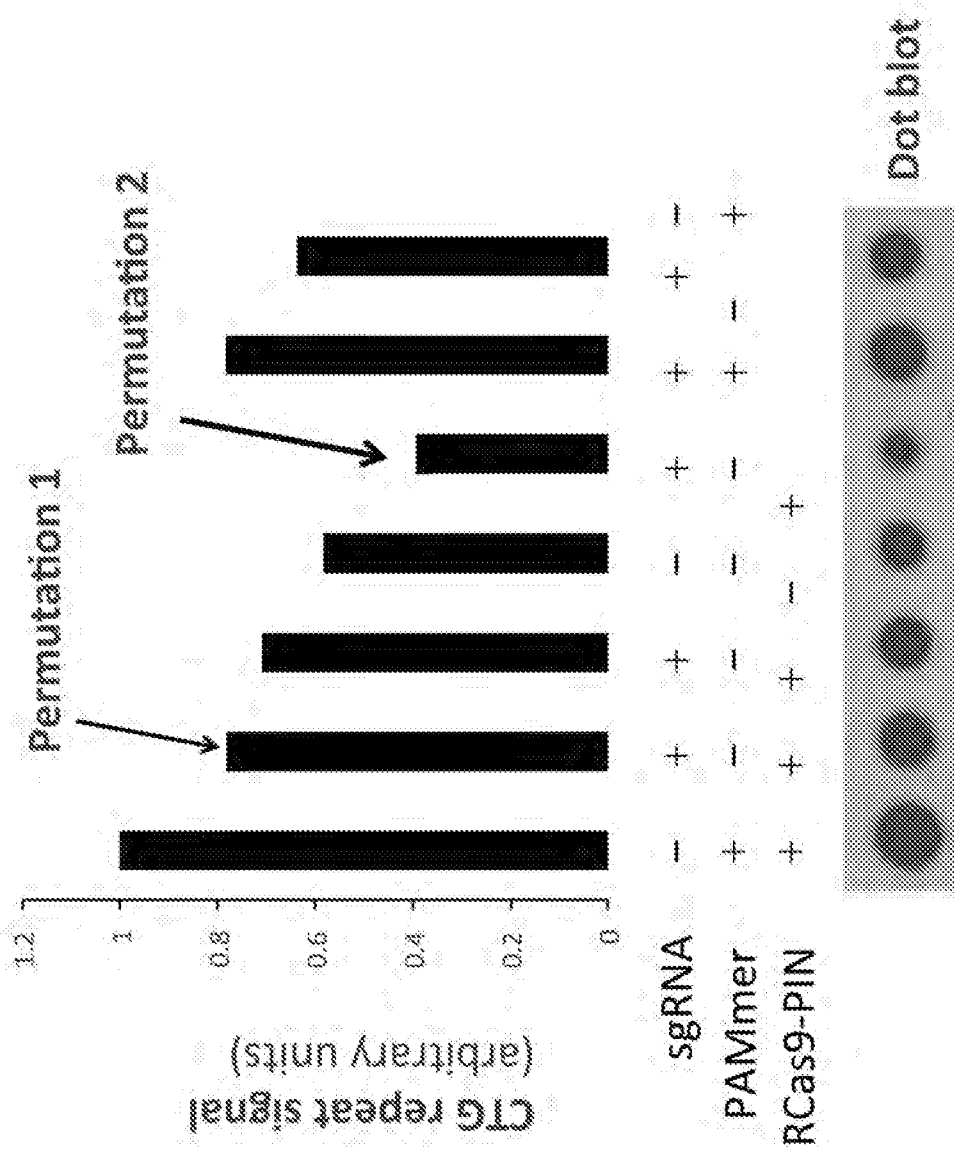


FIG. 7D2

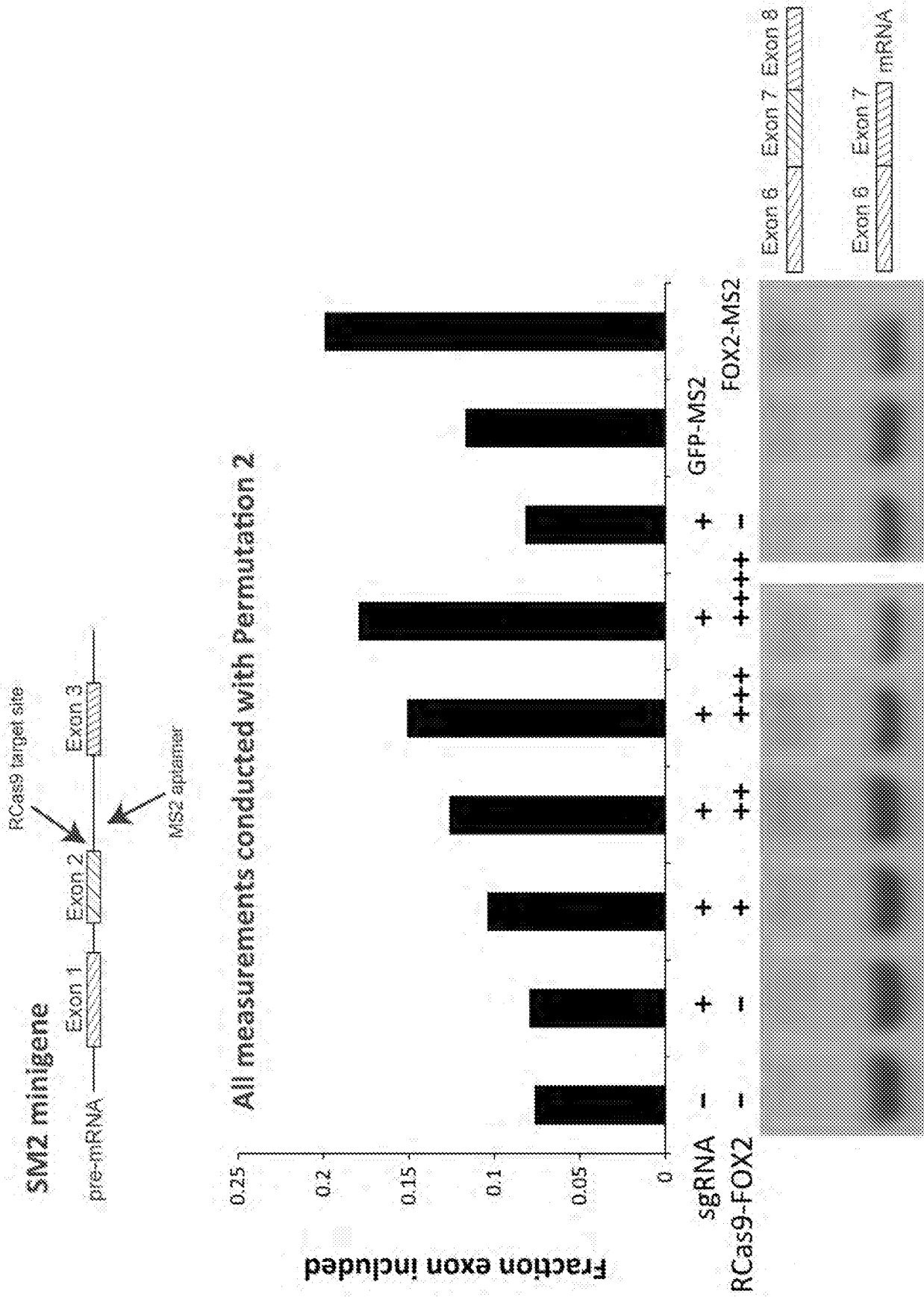


FIG. 7E

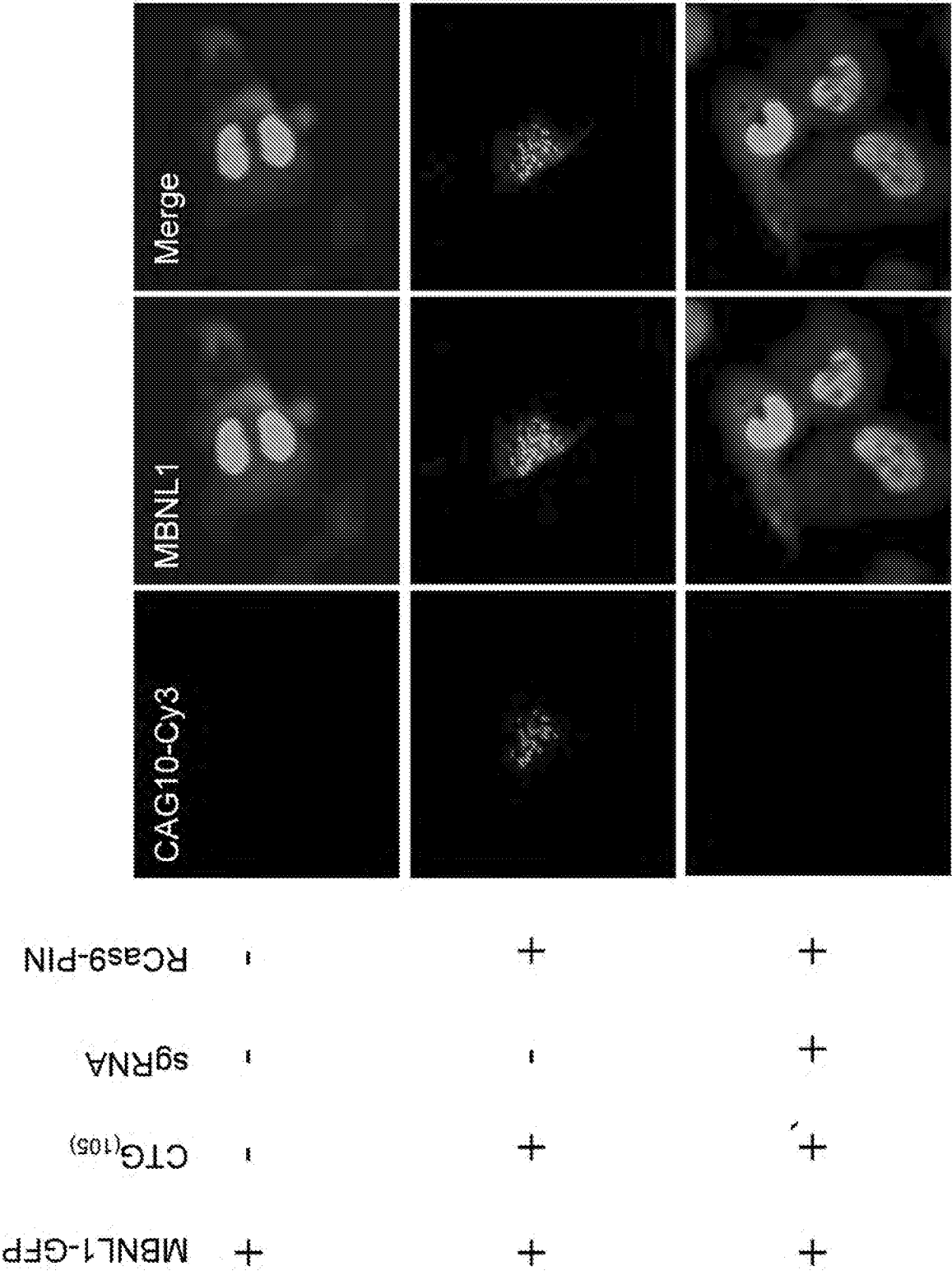
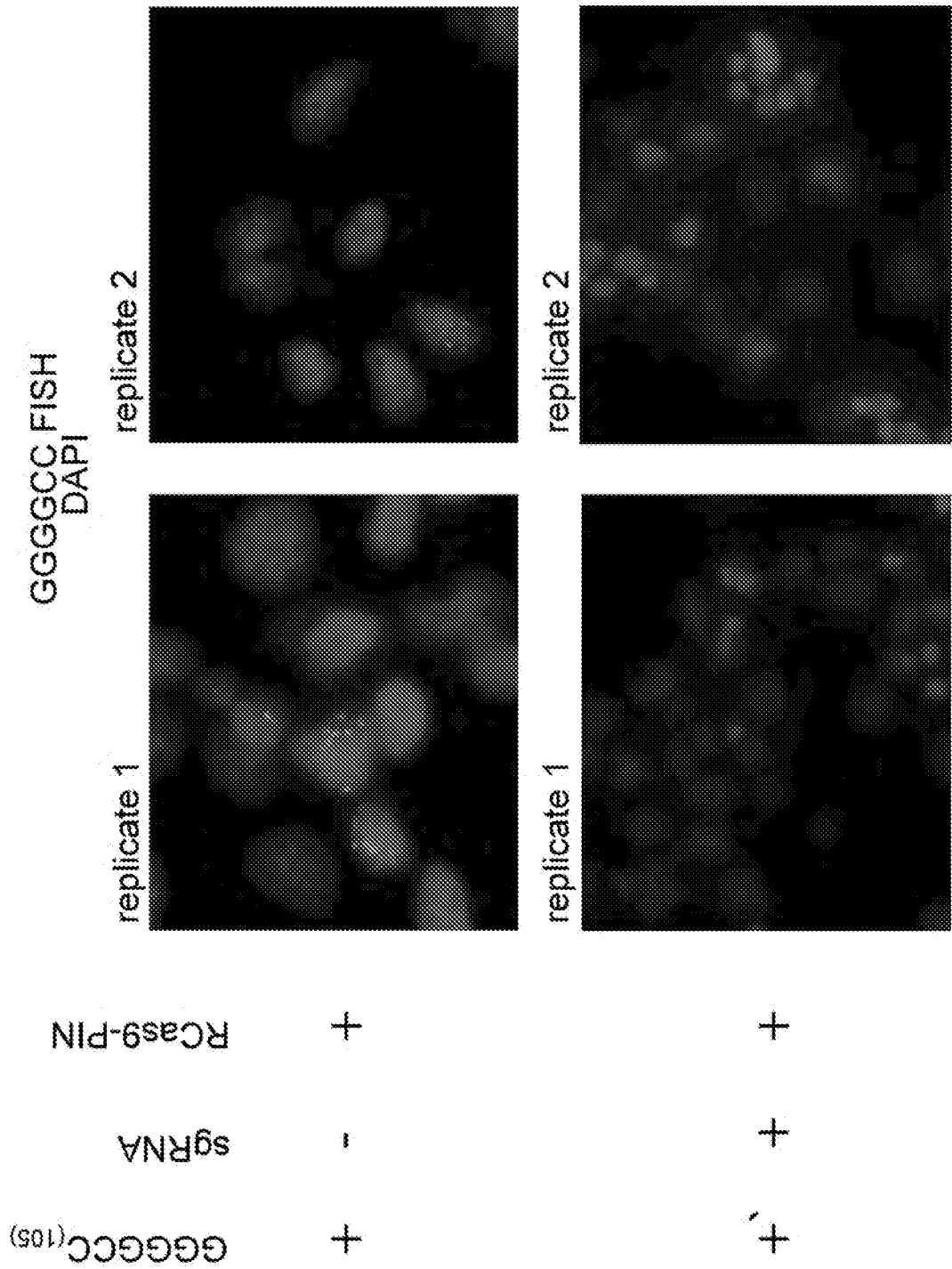


FIG. 7F



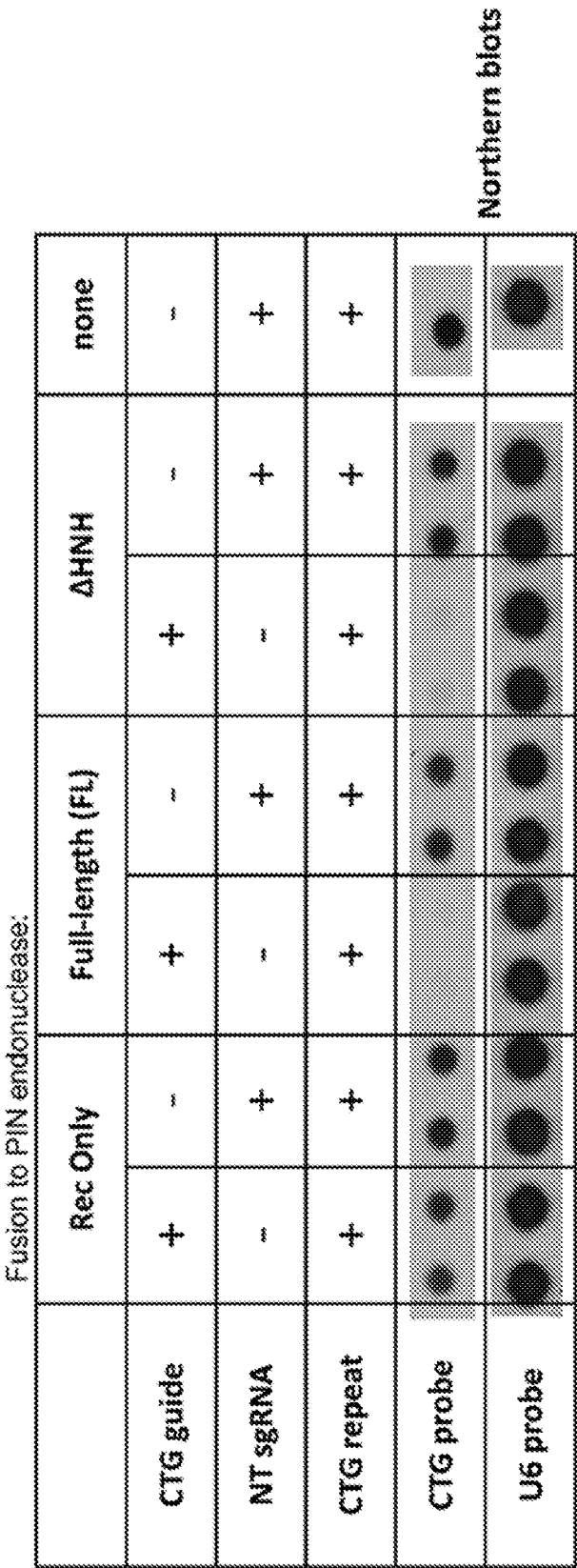


FIG. 8B

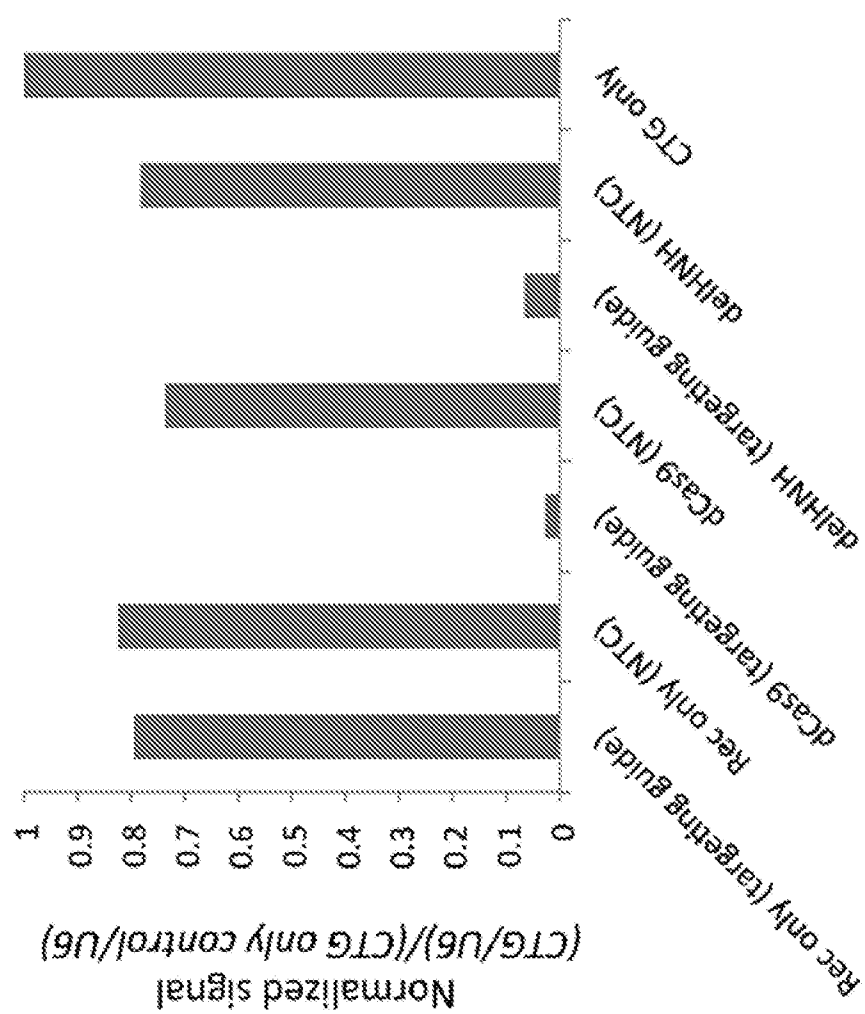


FIG. 8C