

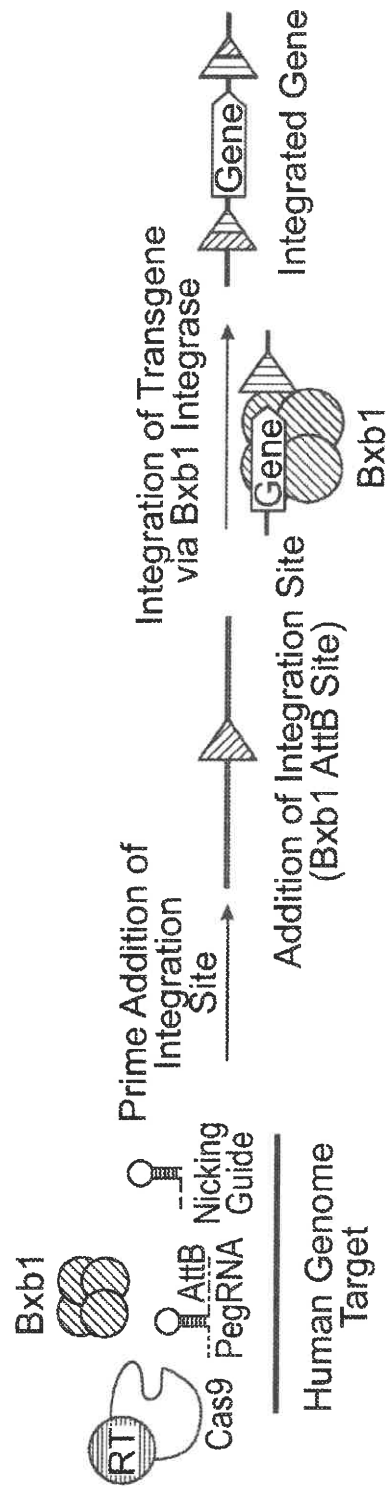


FIG. 1

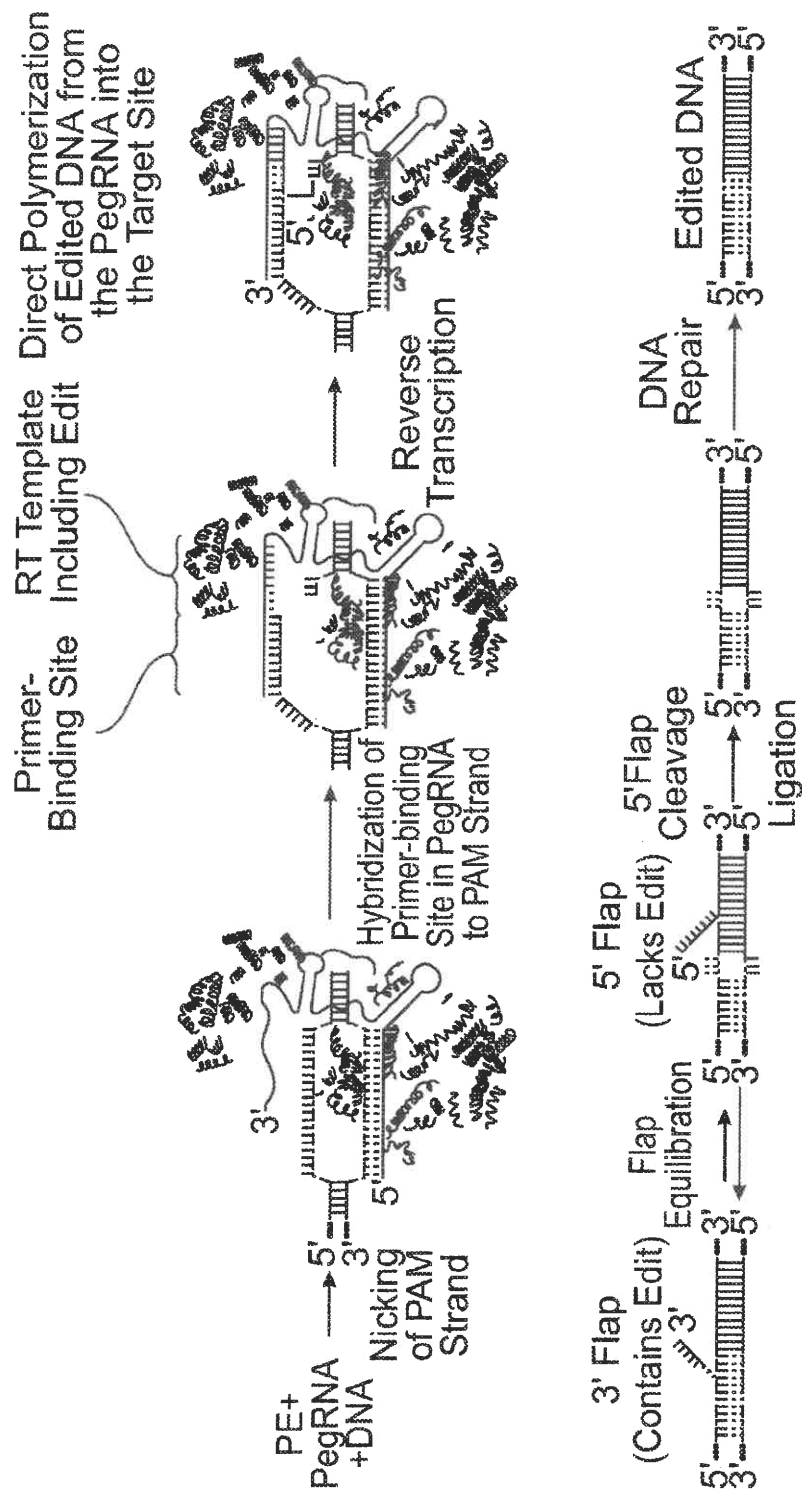
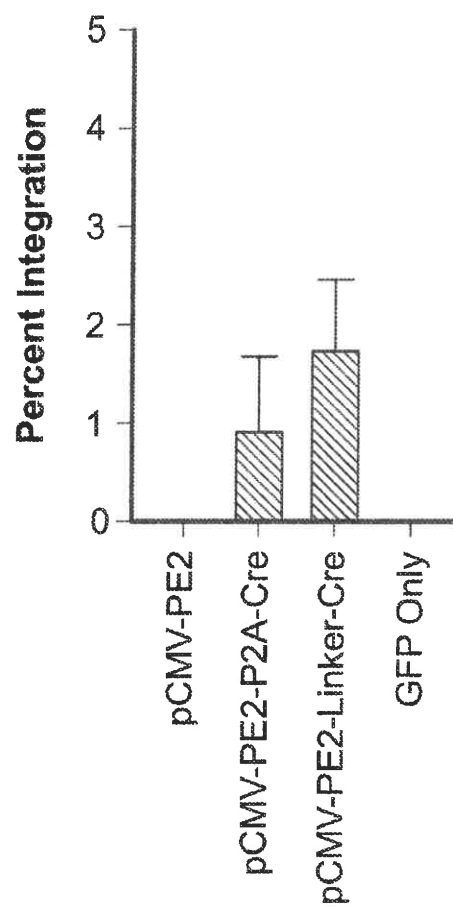


FIG. 2

**FIG. 3**

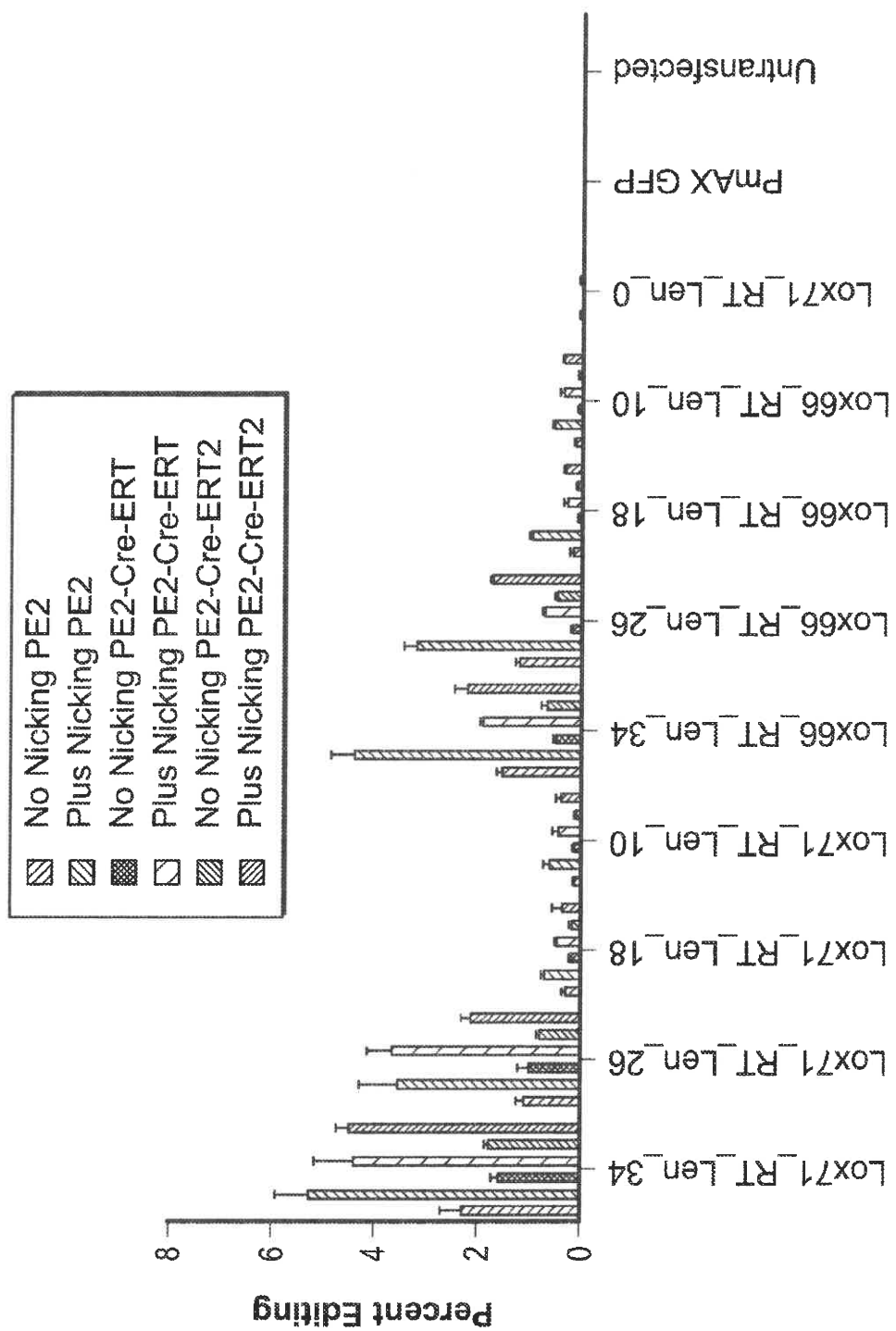


FIG. 4

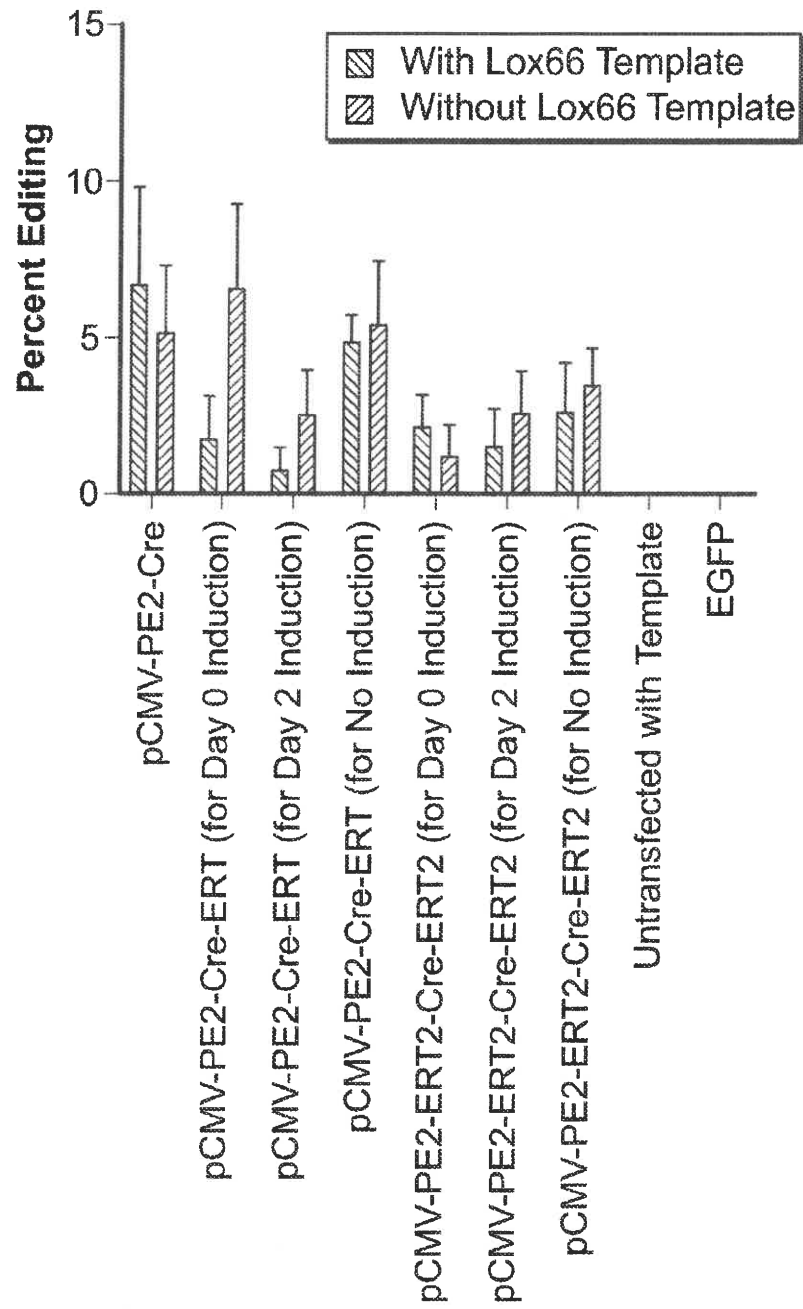


FIG. 5A

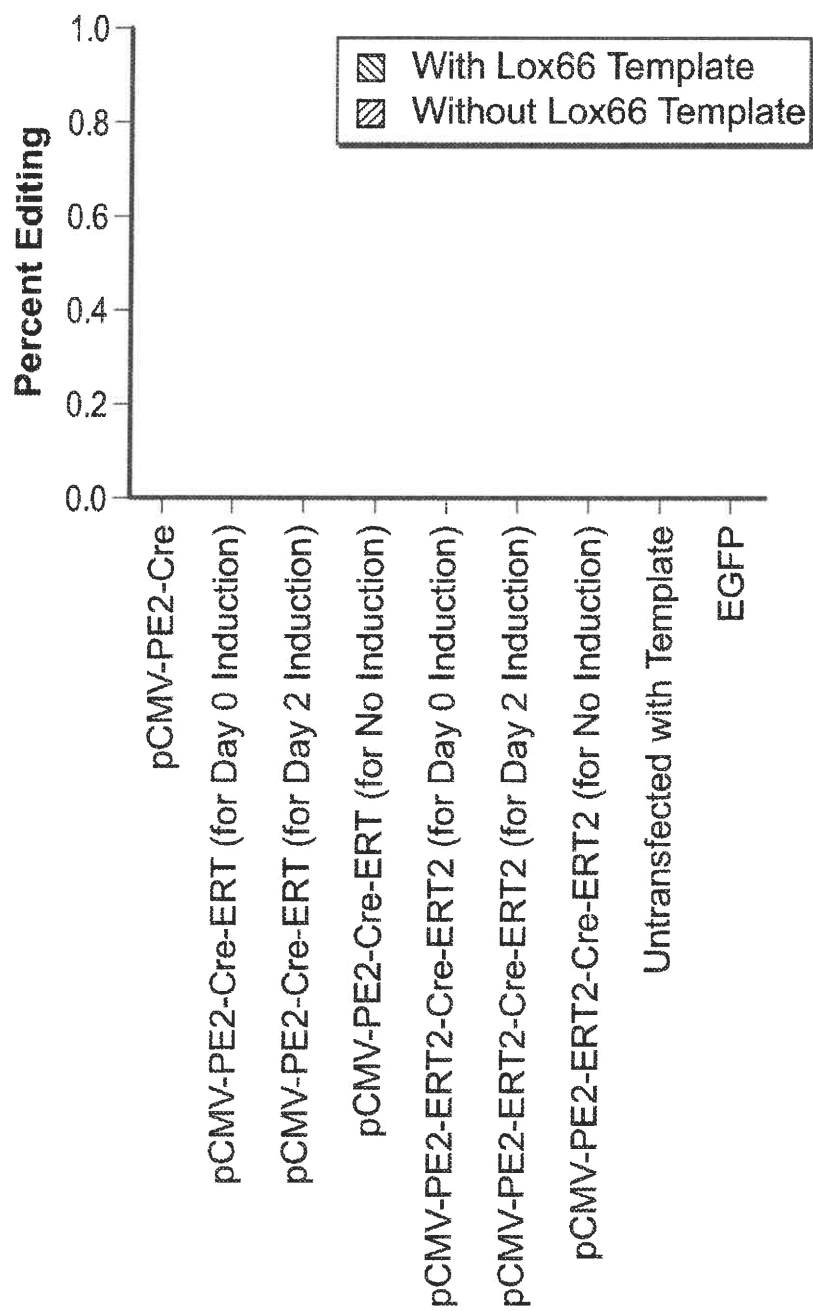


FIG. 5B

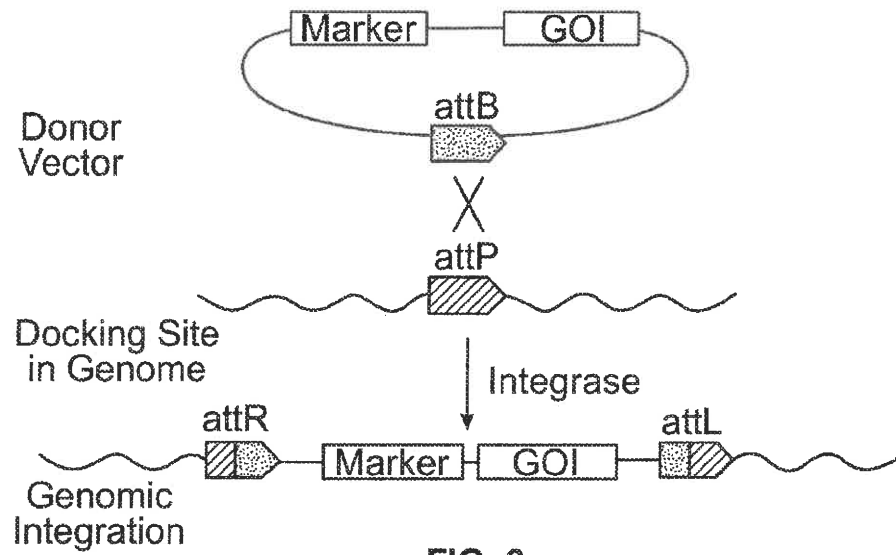


FIG. 6

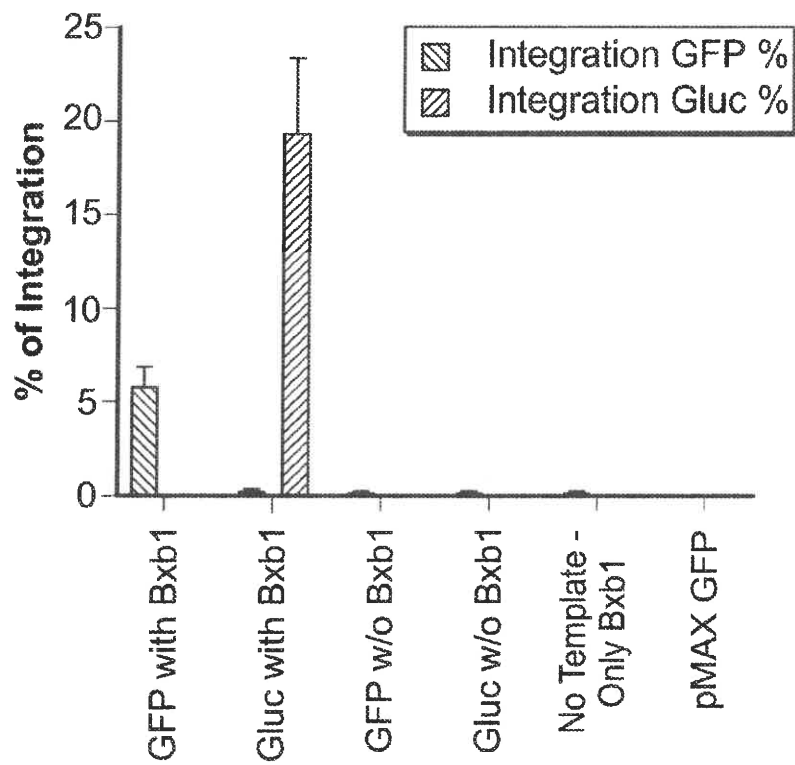


FIG. 7

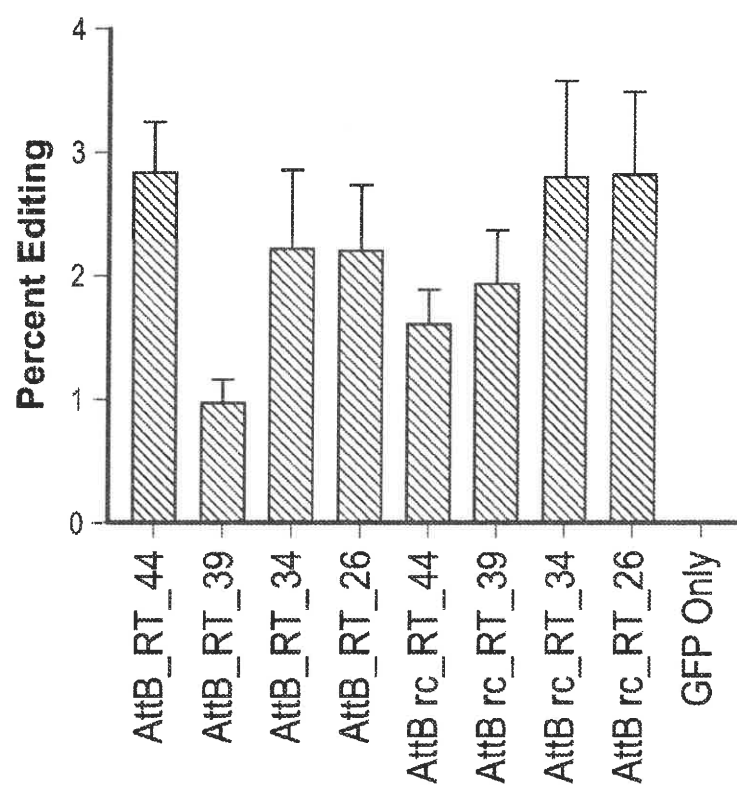


FIG. 8

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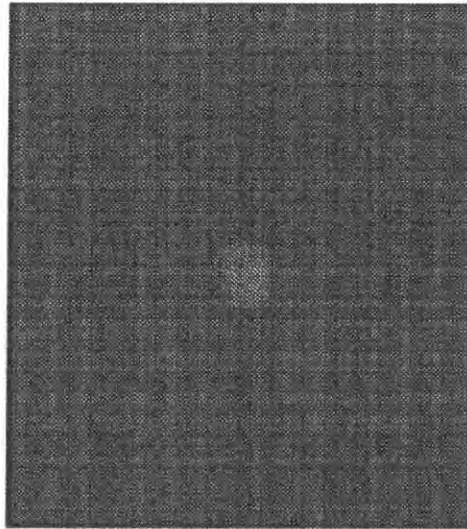


FIG. 9A

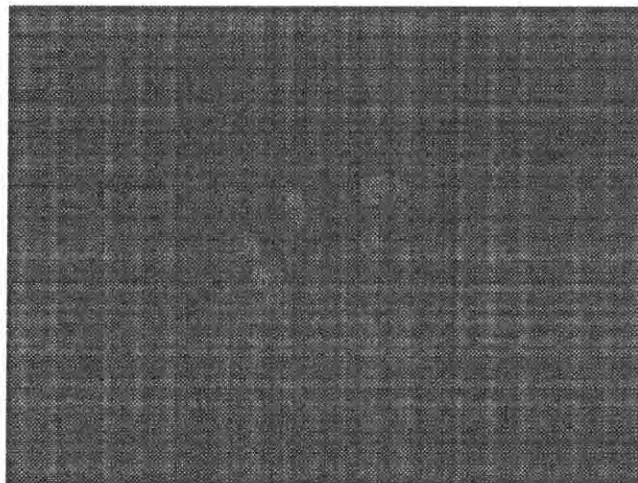


FIG. 9B

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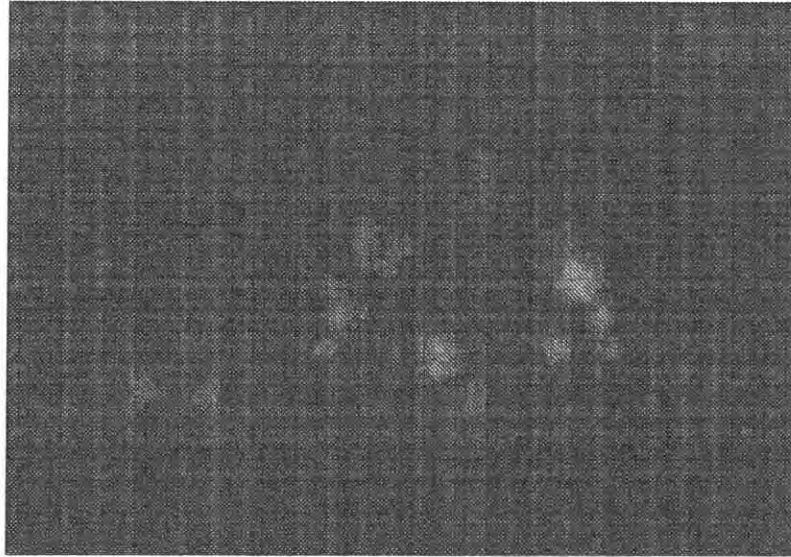


FIG. 9C

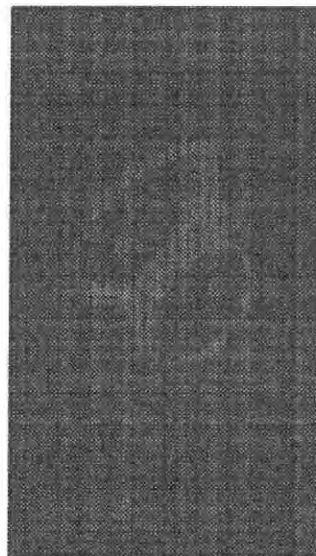


FIG. 9D

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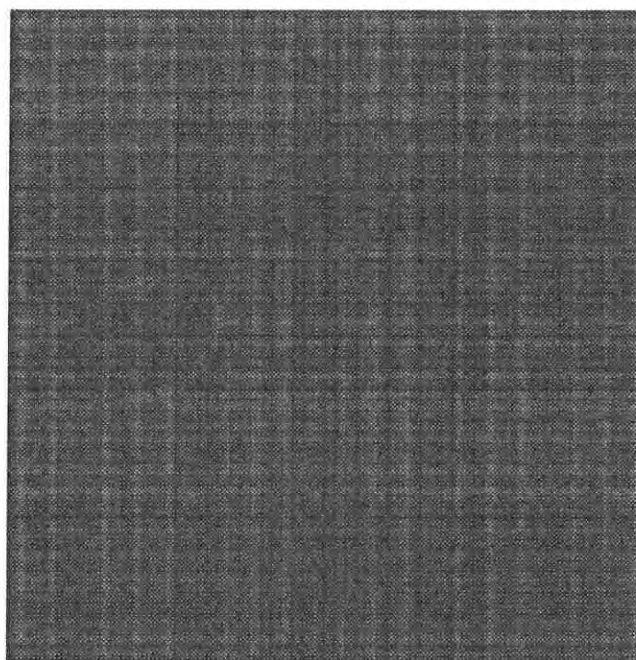


FIG. 9E

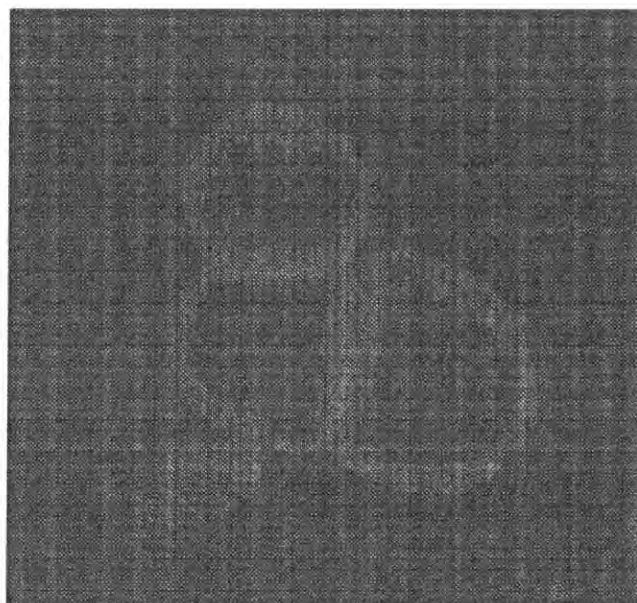


FIG. 9F

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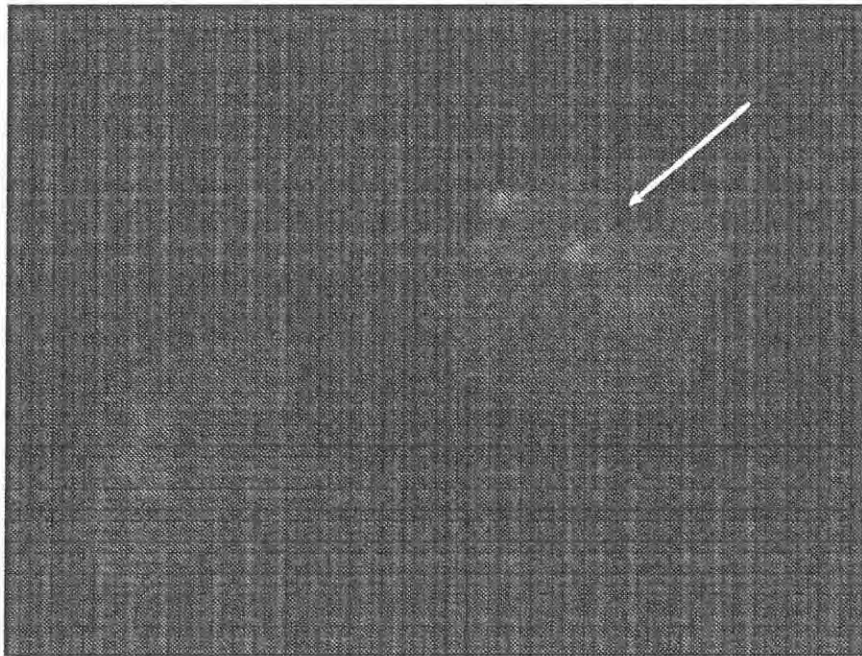


FIG. 9G

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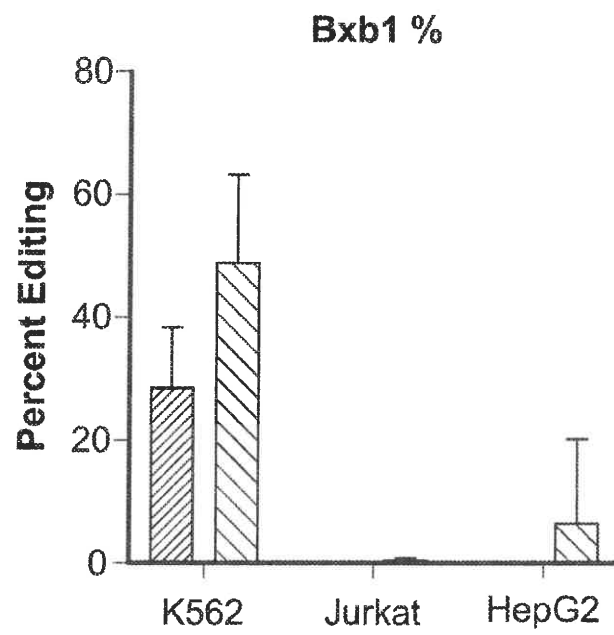


FIG. 10A

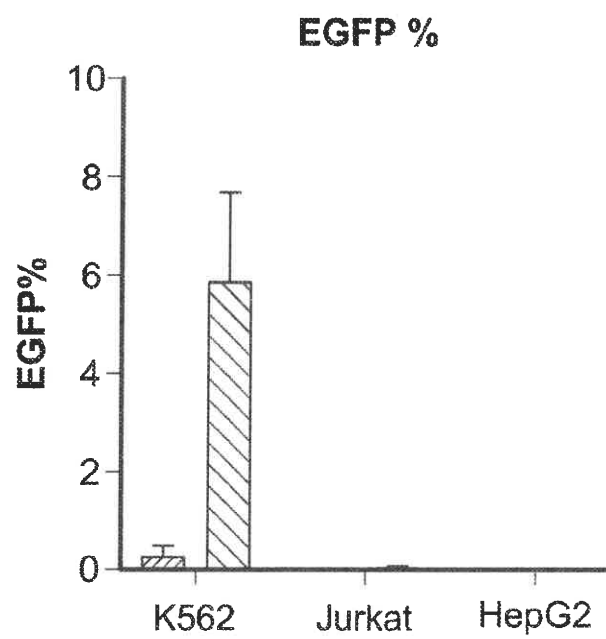


FIG. 10B

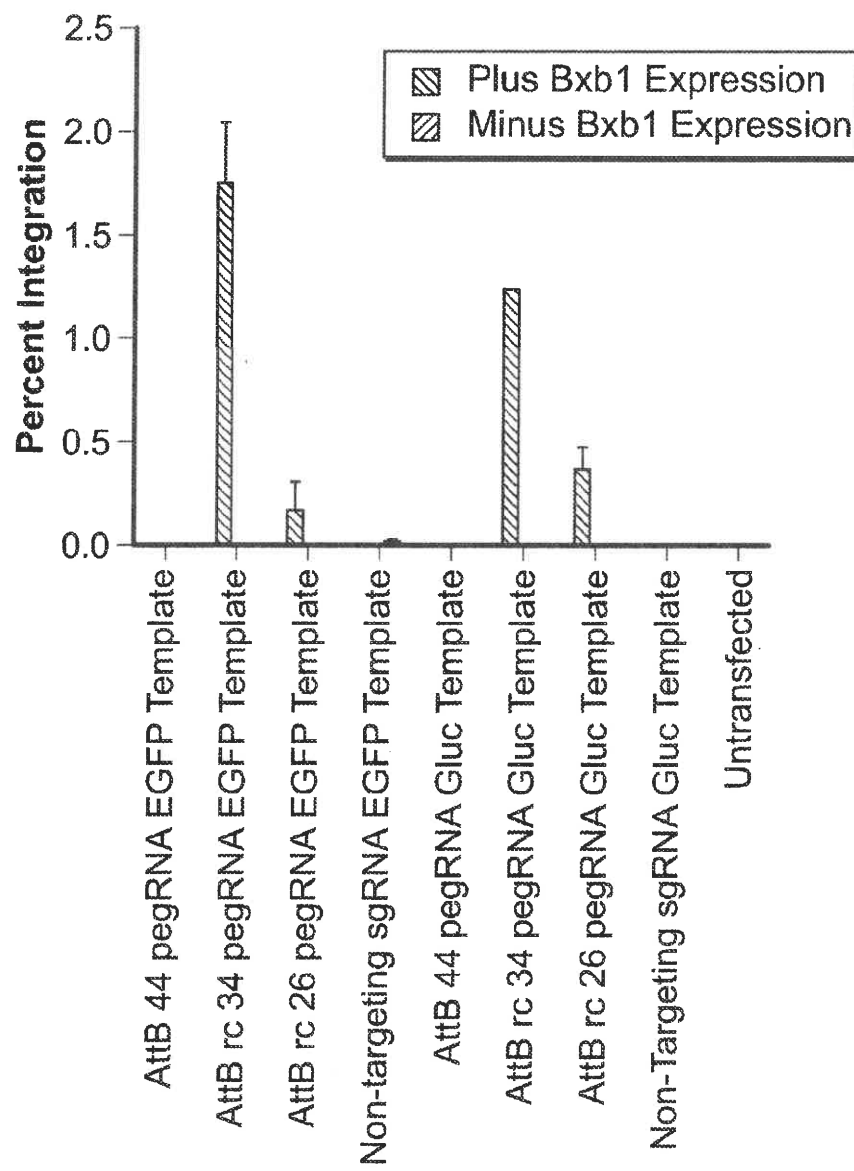


FIG. 11

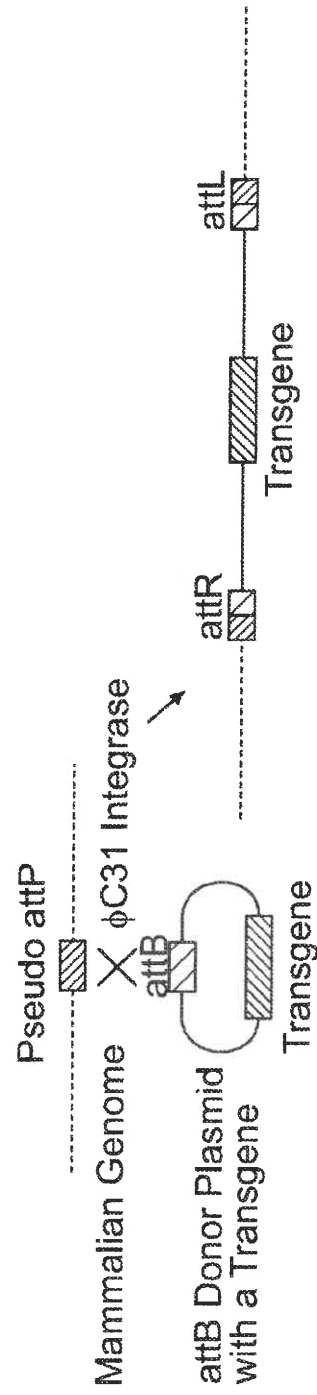


FIG. 12

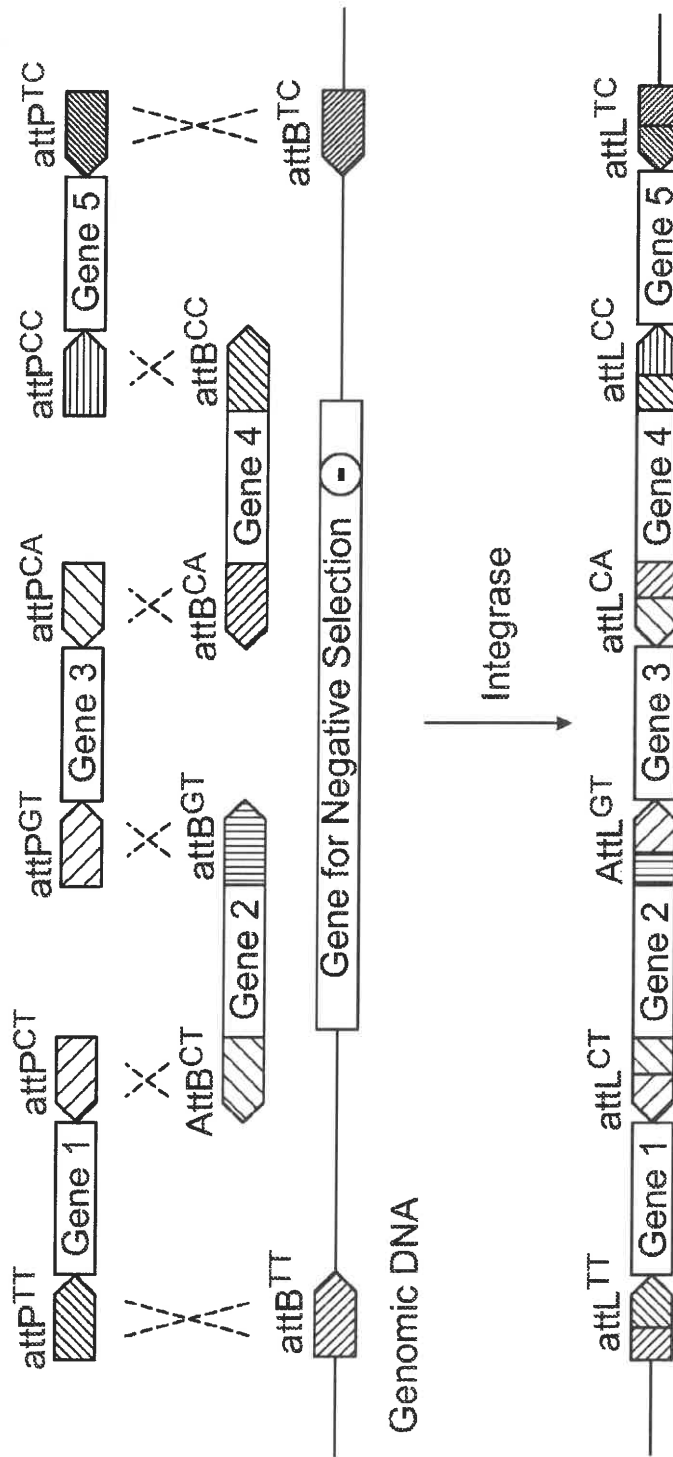


FIG. 13

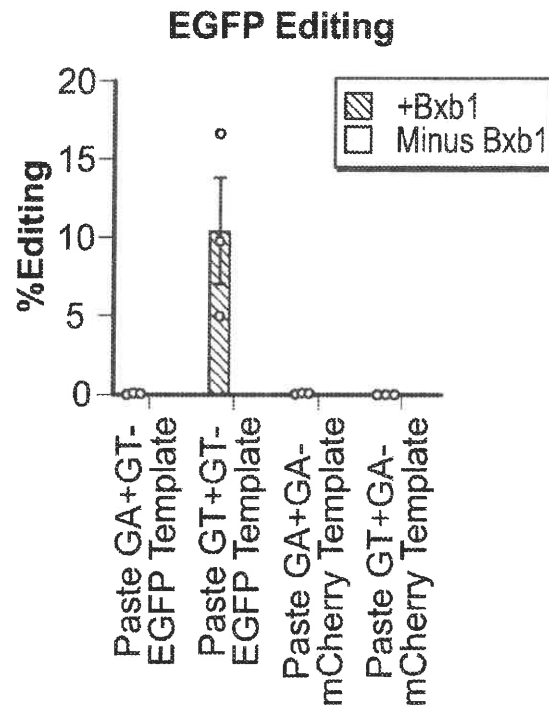


FIG. 14A

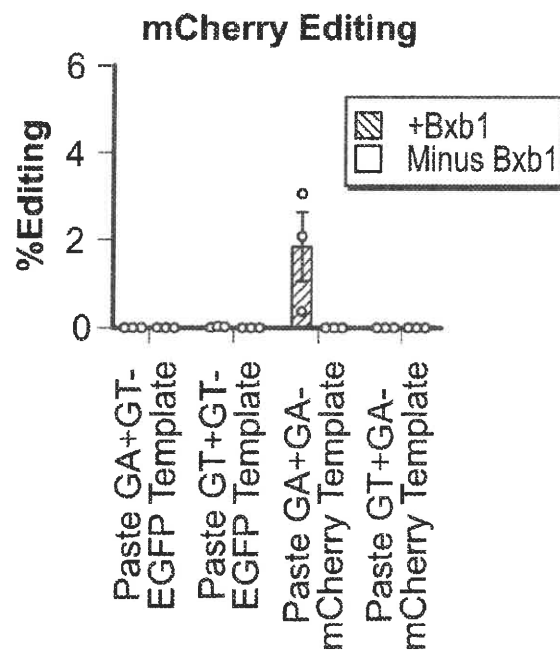


FIG. 14B

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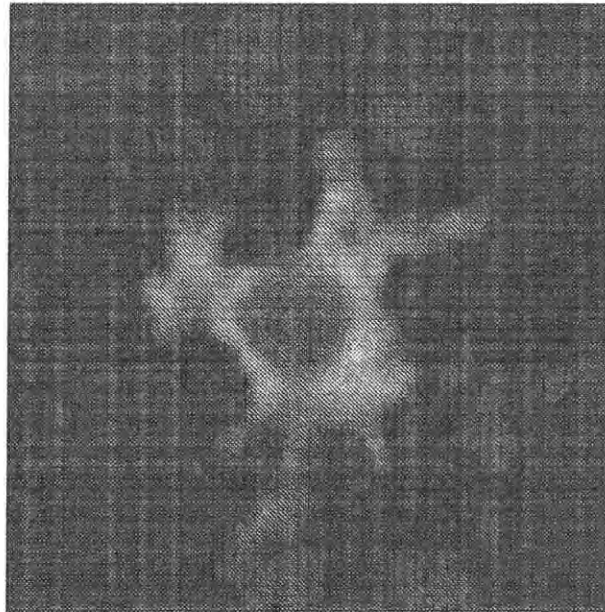


FIG. 15A

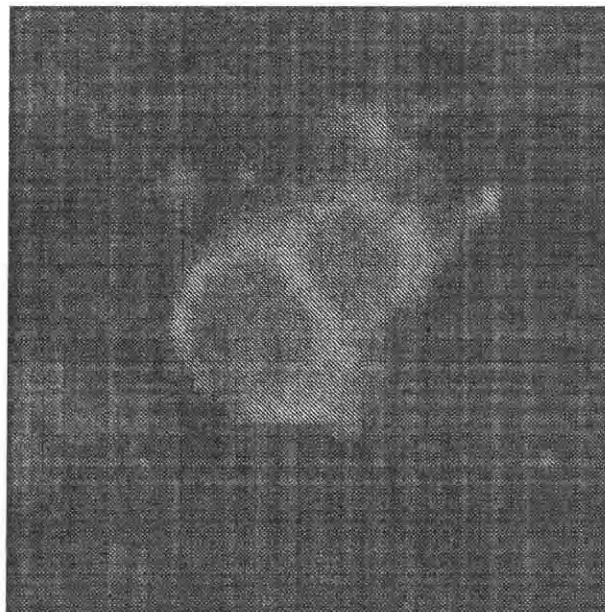


FIG. 15B

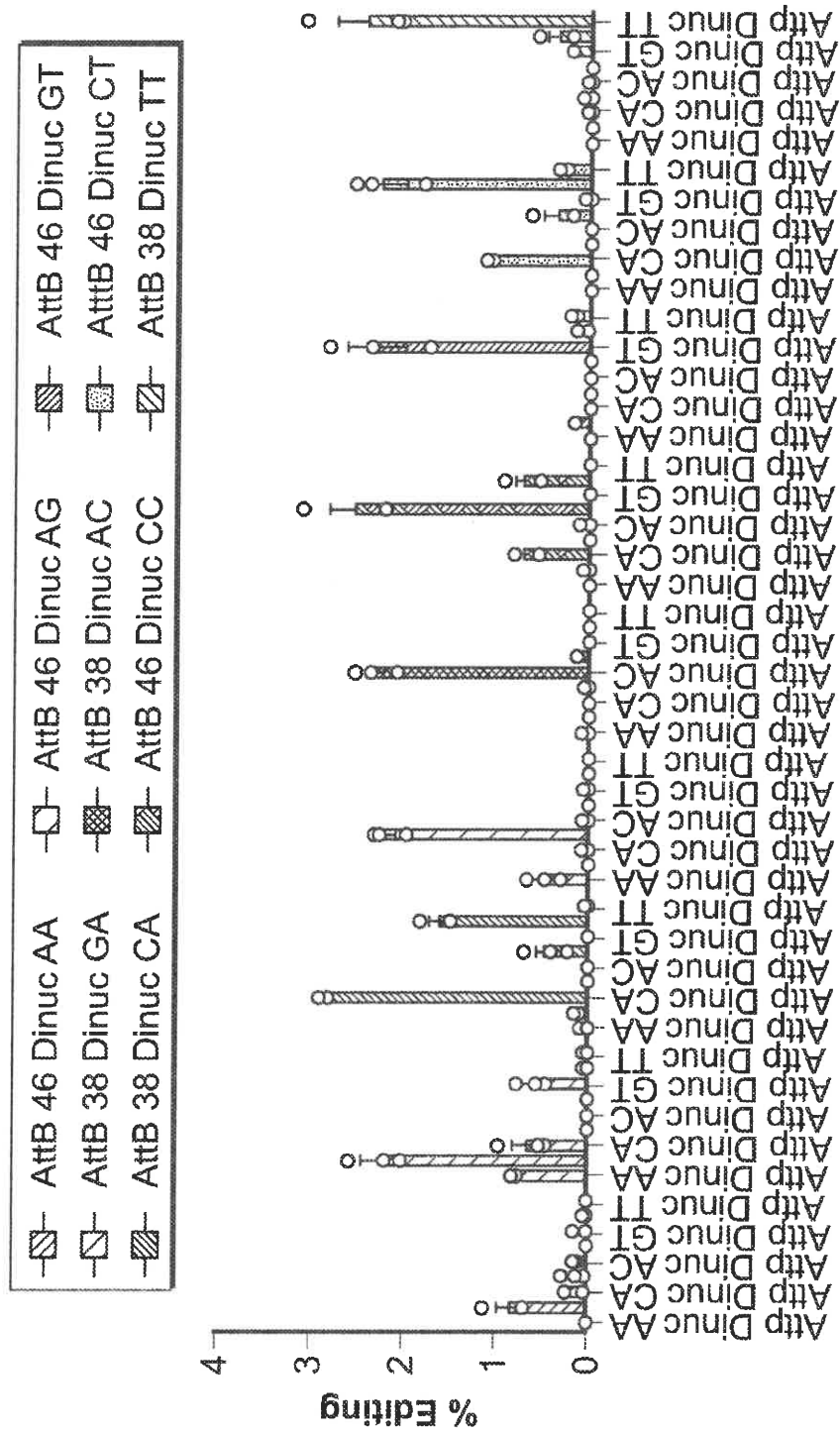


FIG. 16A

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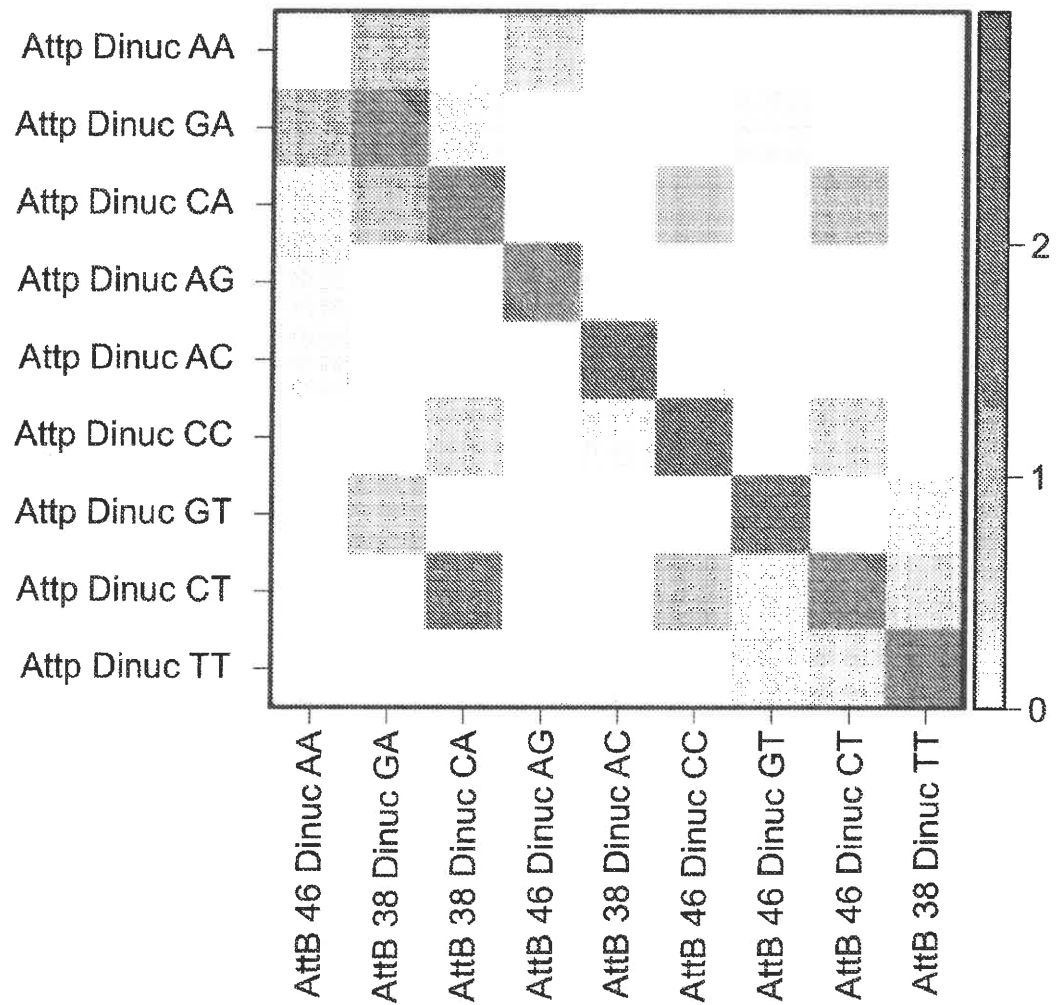


FIG. 16B

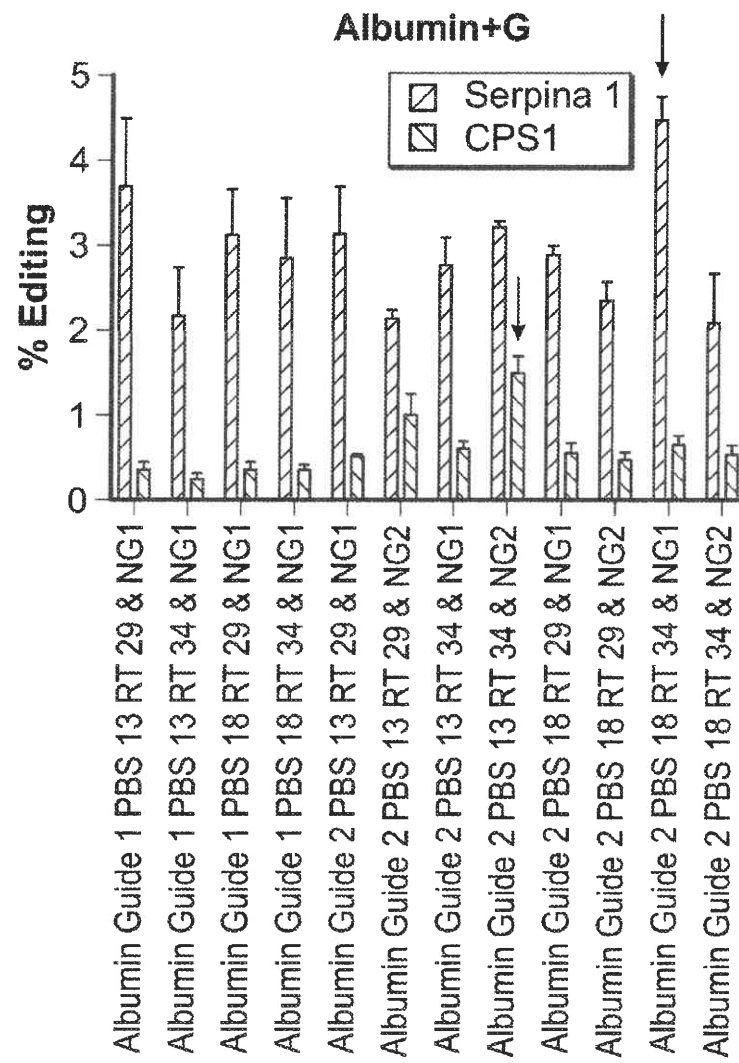


FIG. 17

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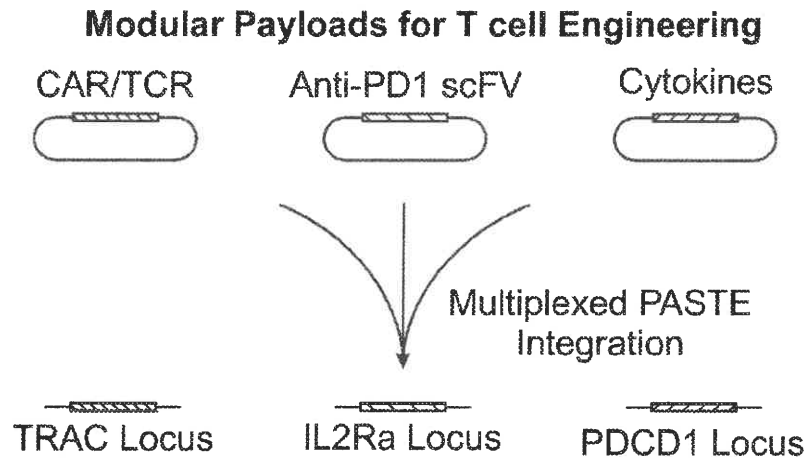


FIG. 18

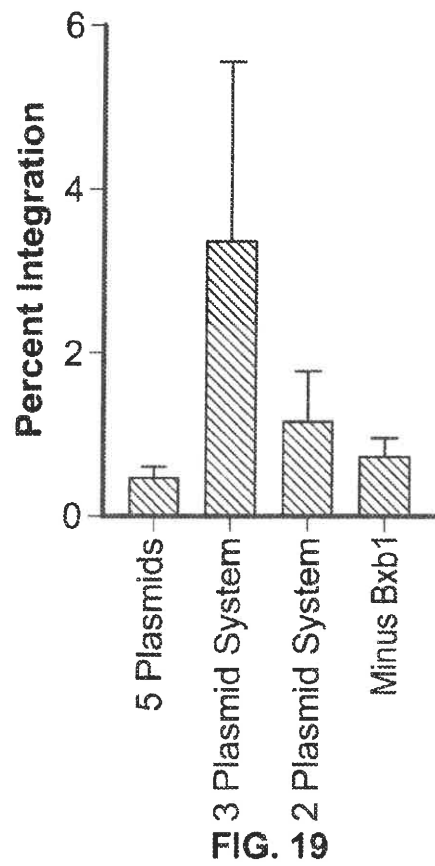


FIG. 19

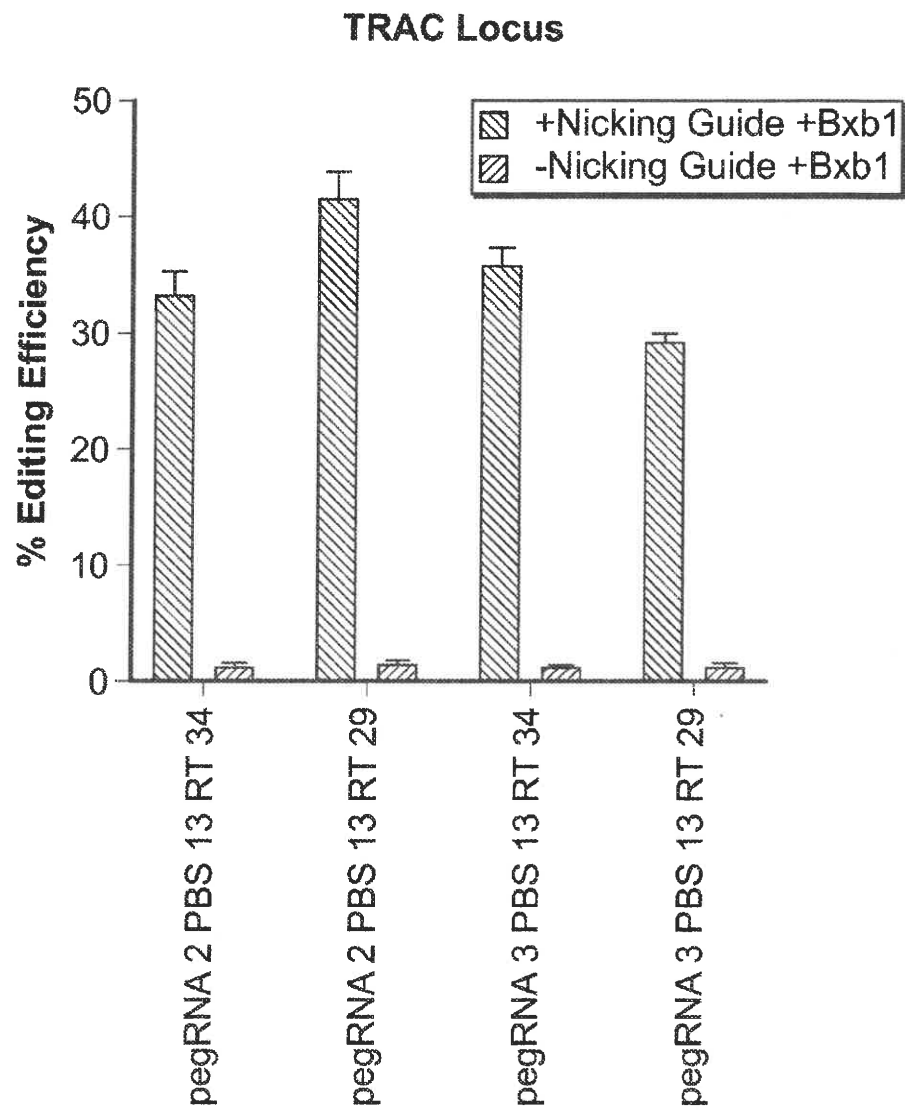


FIG. 20

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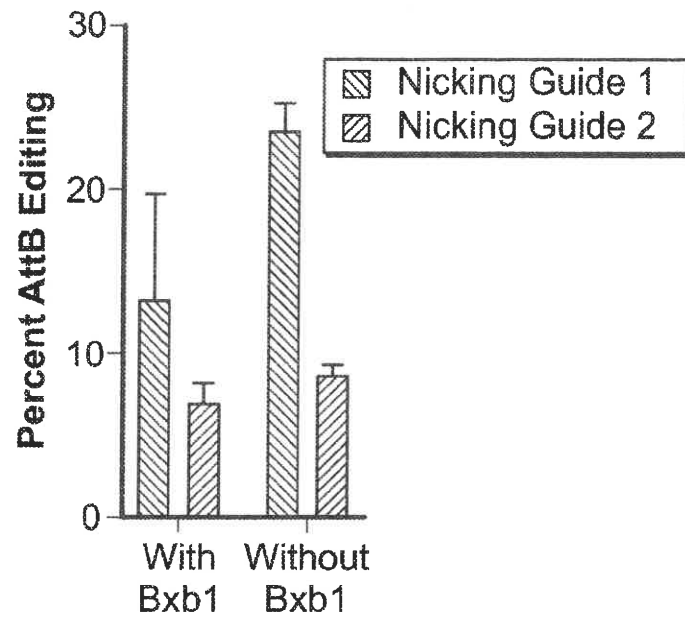


FIG. 21A

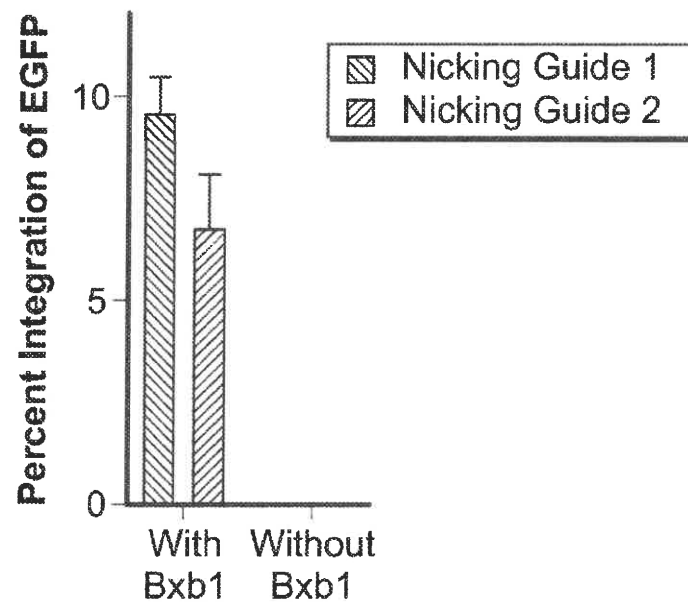
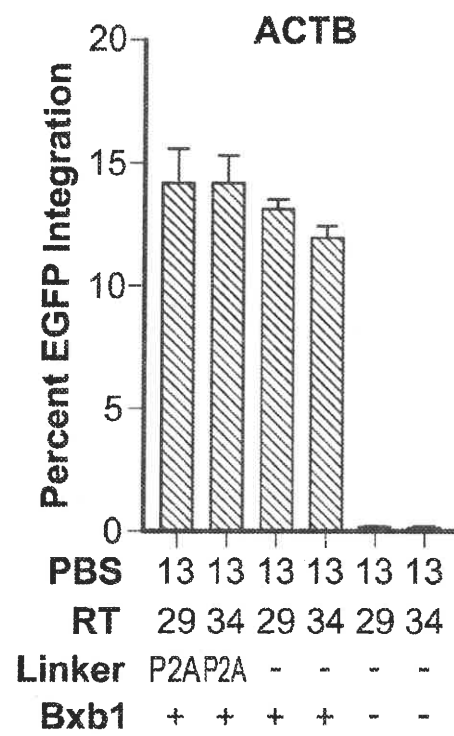


FIG. 21B

**FIG. 21C**

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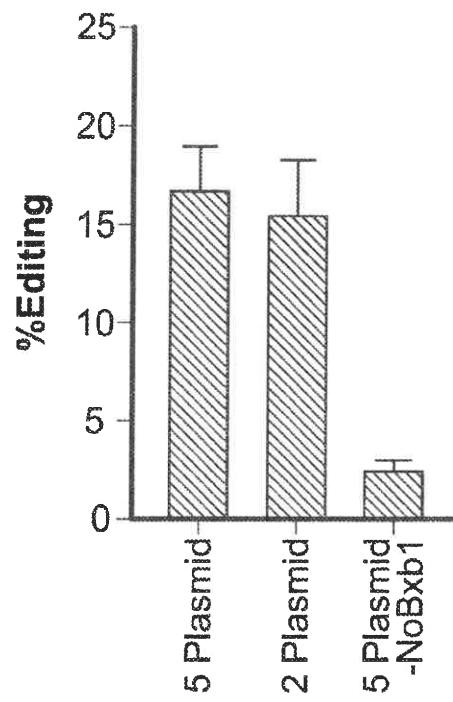


FIG. 22A

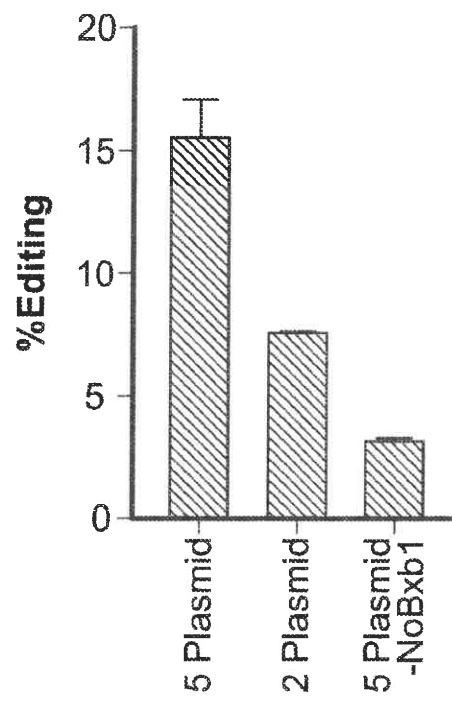


FIG. 22B

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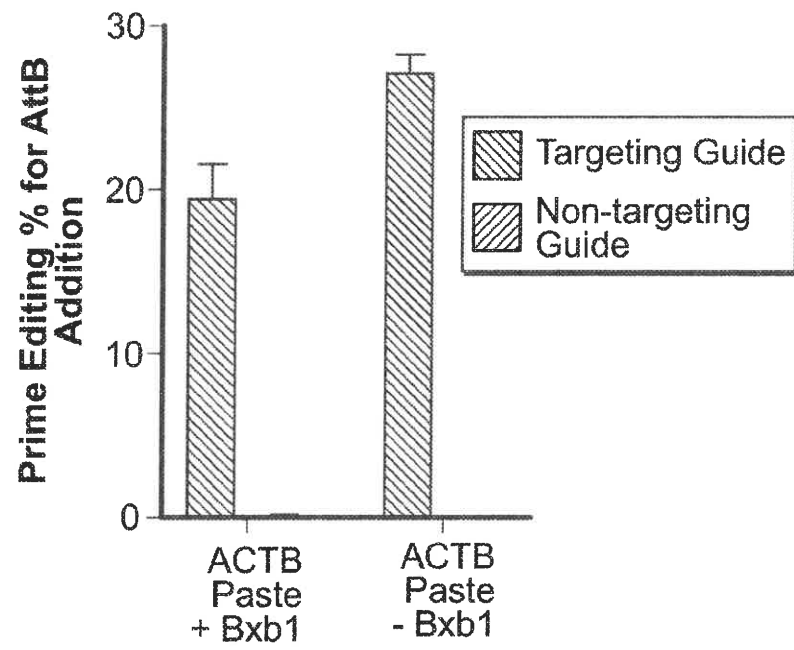


FIG. 23A

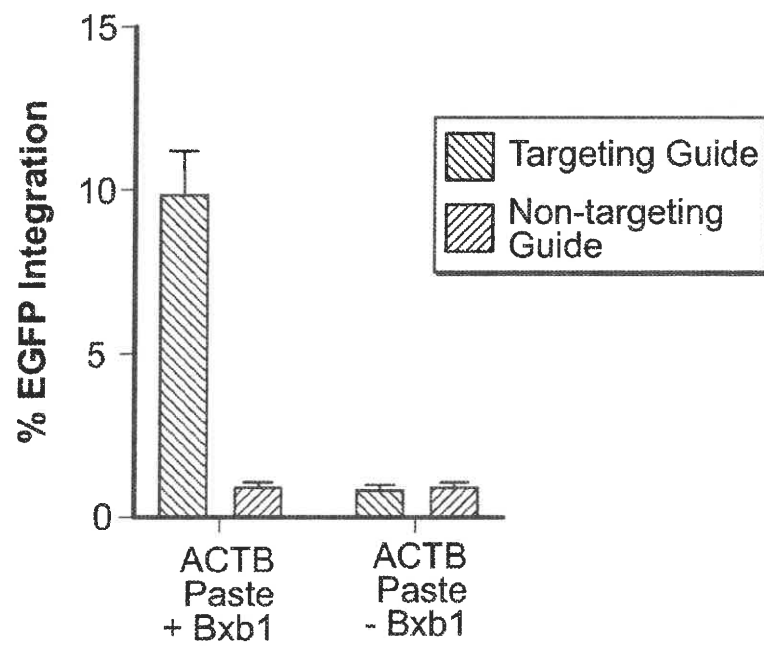


FIG. 23B

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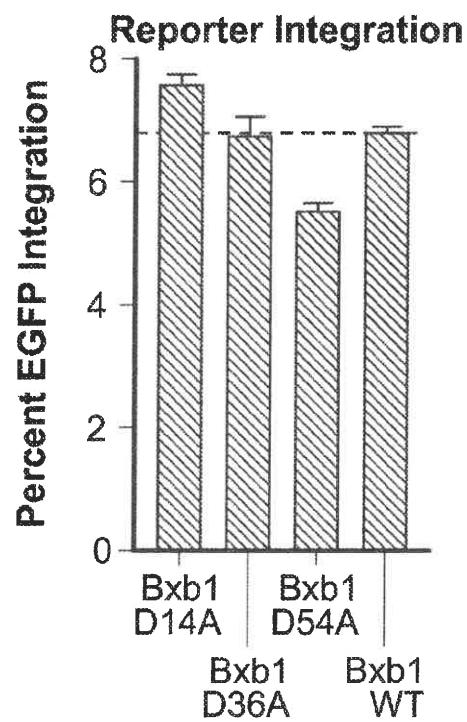


FIG. 23C

Spacer	Scaffold	RT	AttB	PBS
<hr/>				
Lengths to Consider:		10-34nt	36-46nt	8-18nt

FIG. 24A

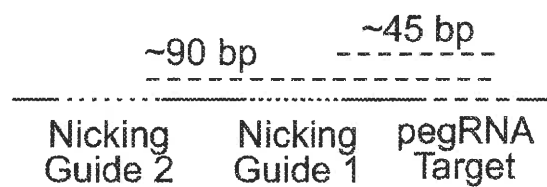


FIG. 24B

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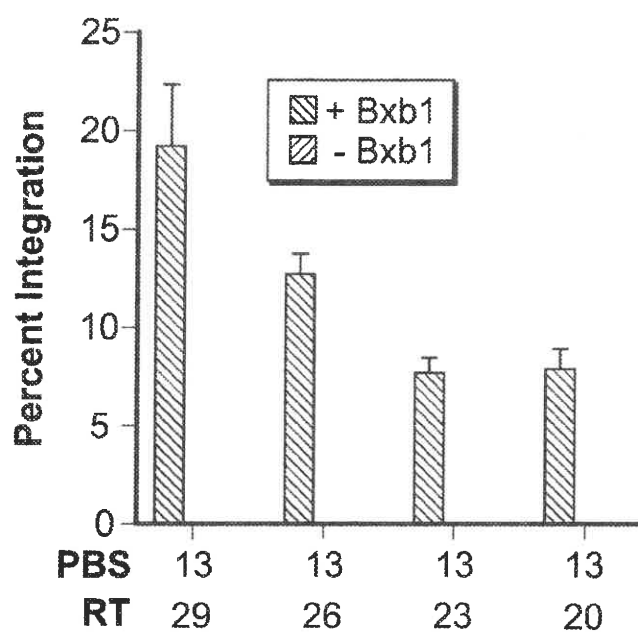


FIG. 25A

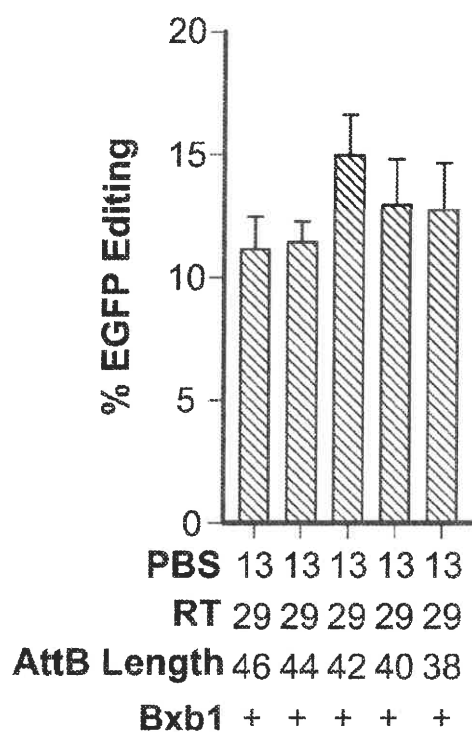


FIG. 25B

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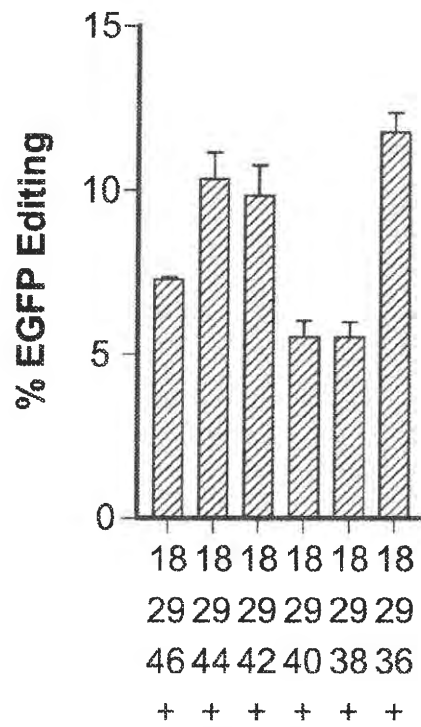


FIG. 25C

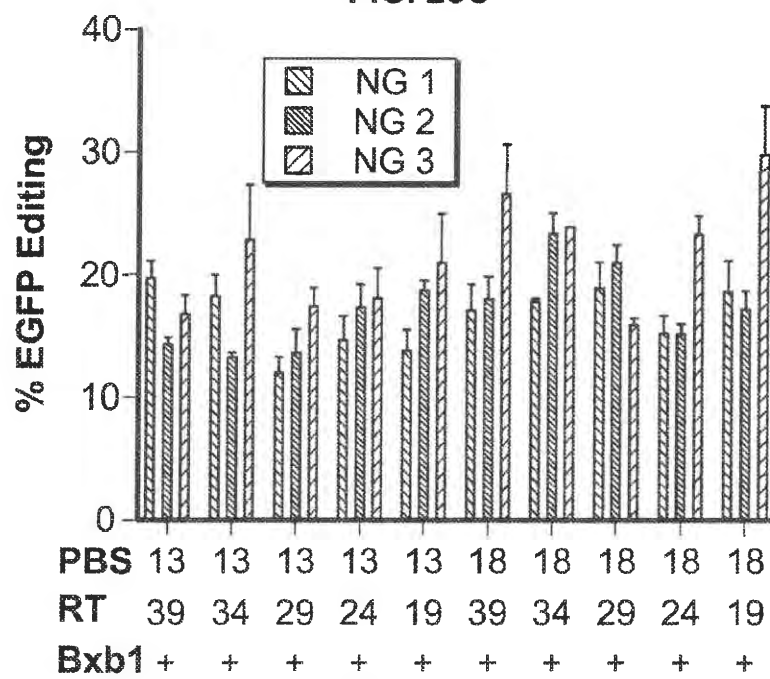


FIG. 25D

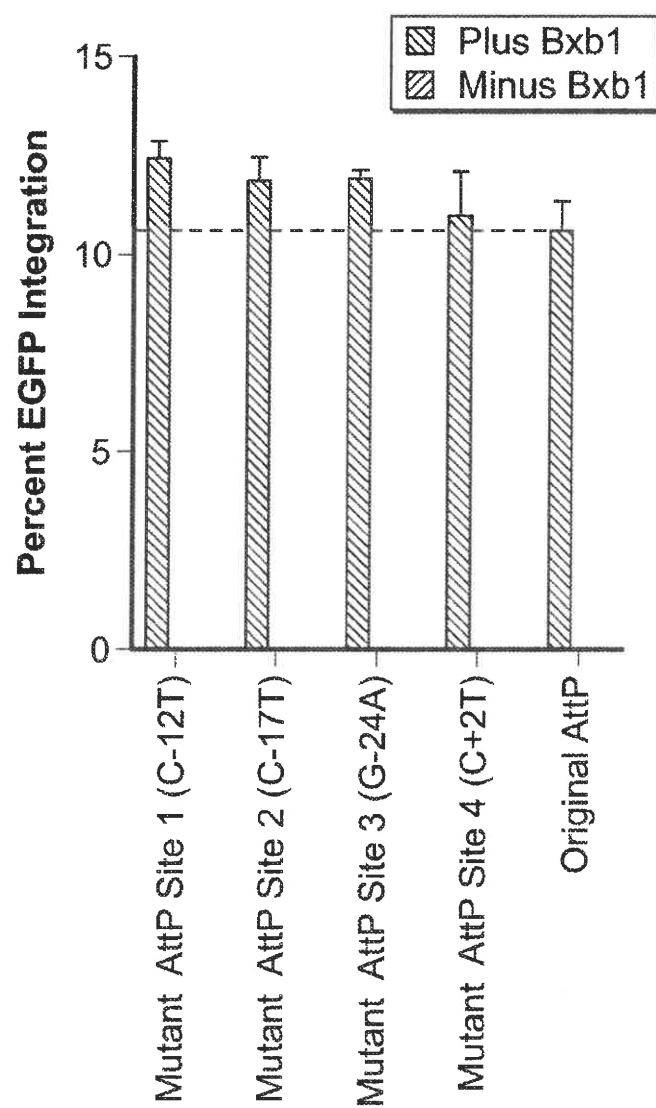


FIG. 25E

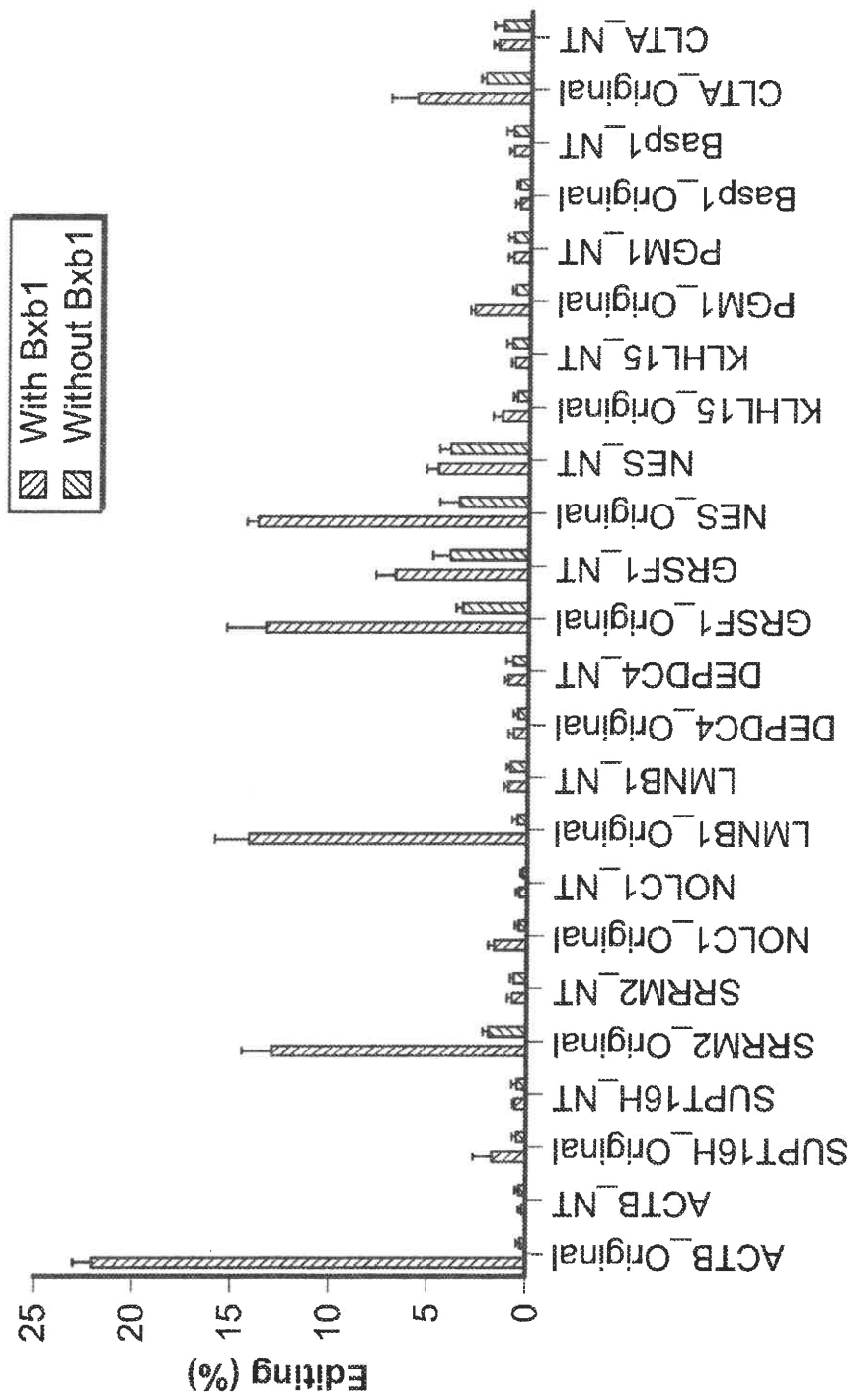
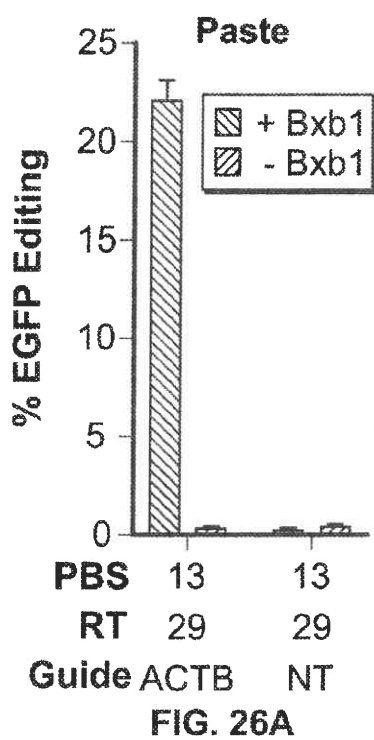
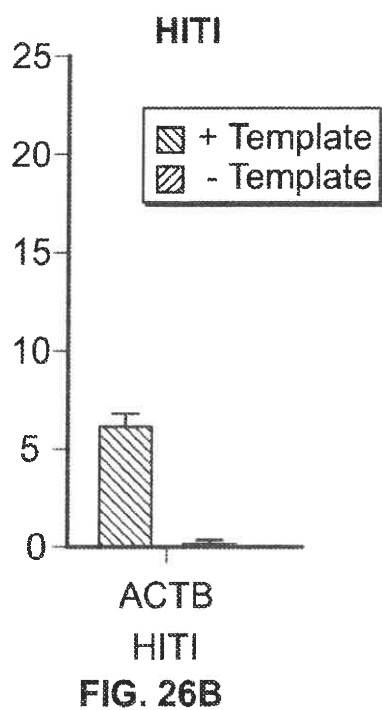


FIG. 25F



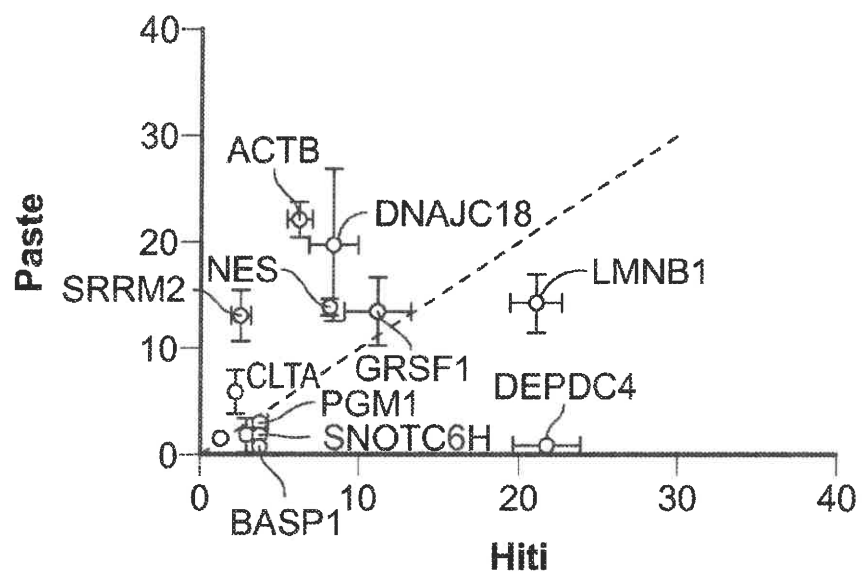


FIG. 26C

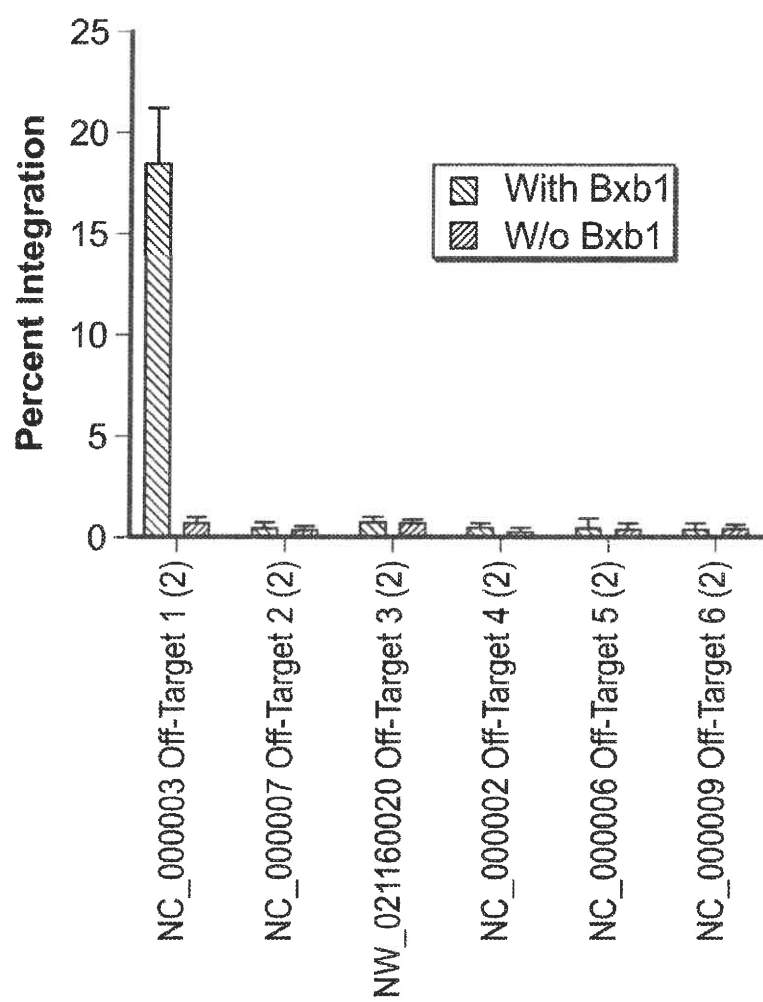


FIG. 26D

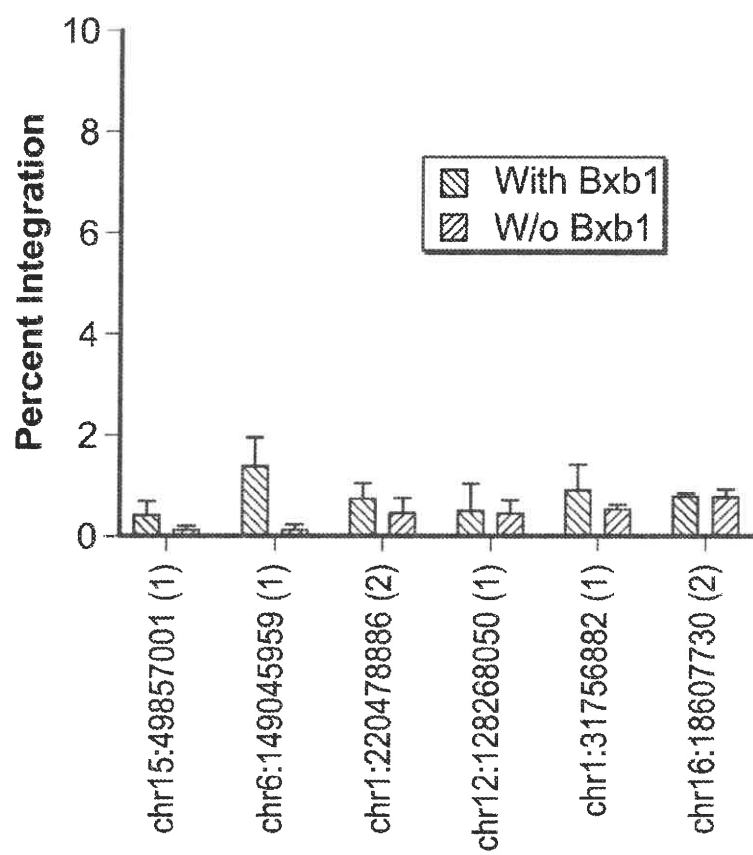


FIG. 26E

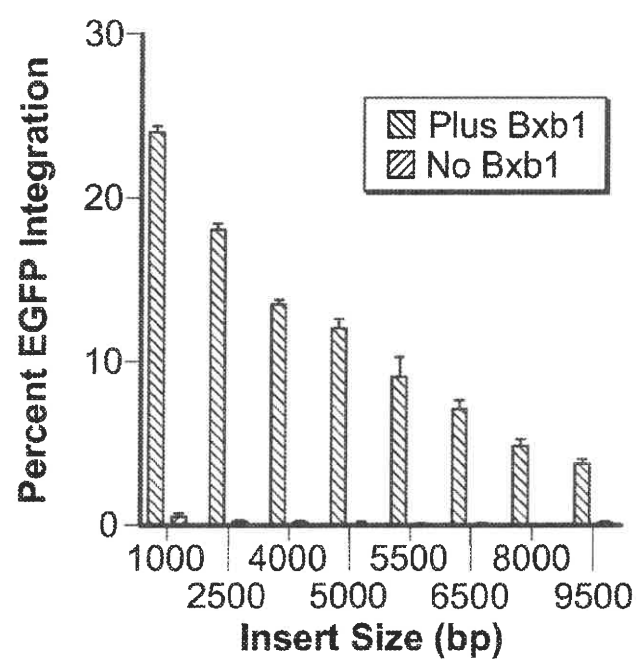


FIG. 26F

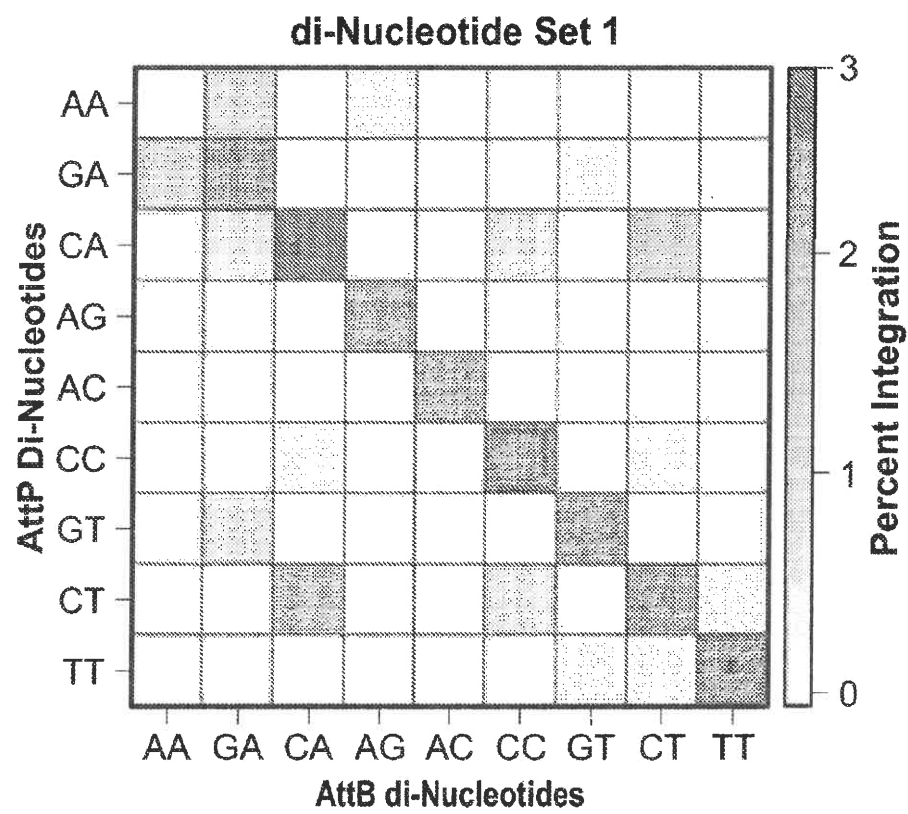
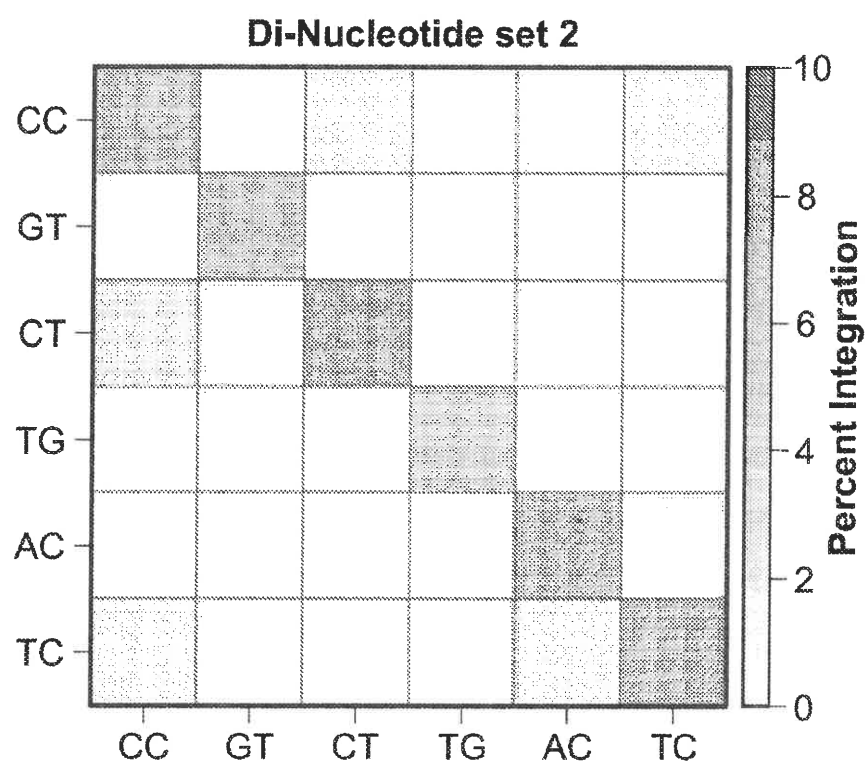


FIG. 27A

**FIG. 27B**

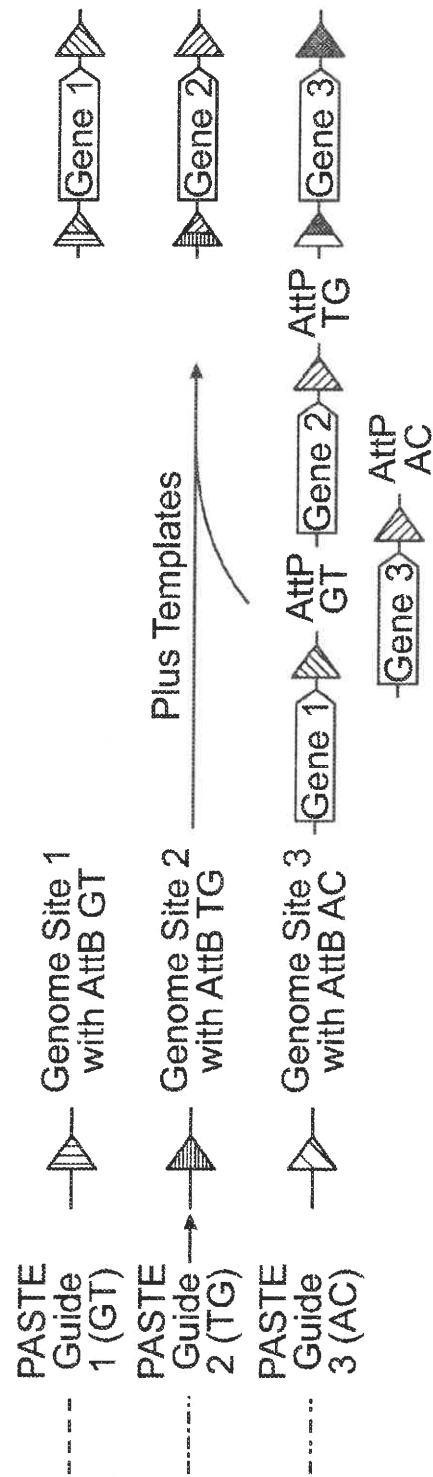


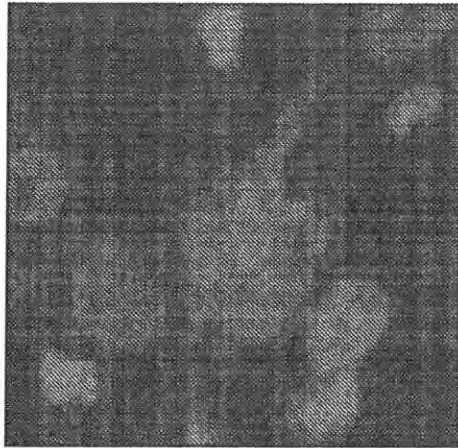
FIG. 27C

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Paste

Literature

ACTB (Cytoskeletal)



SUPT16H (Nucleus)

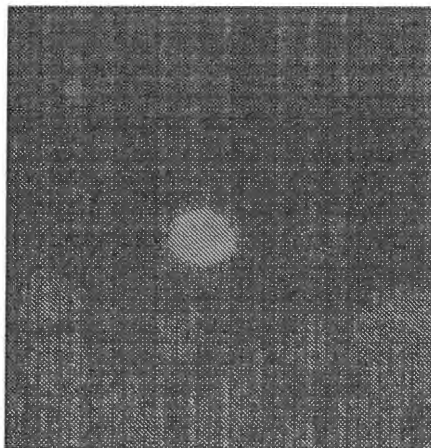
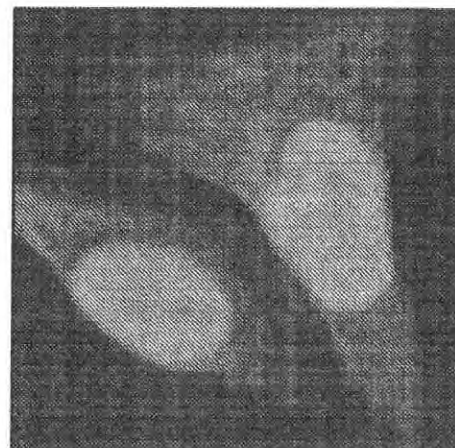


FIG. 28A

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Paste Literature
NOLC1 (Fibrillar Center)



SRRM2 (Nuclear Speckles)

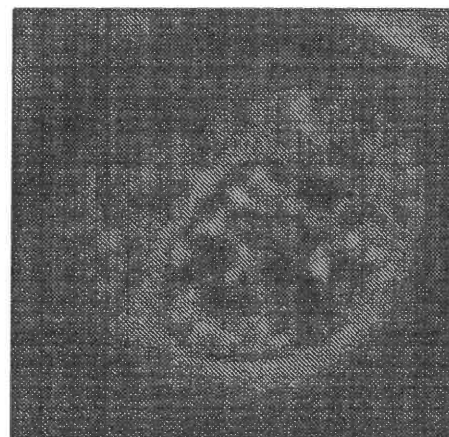


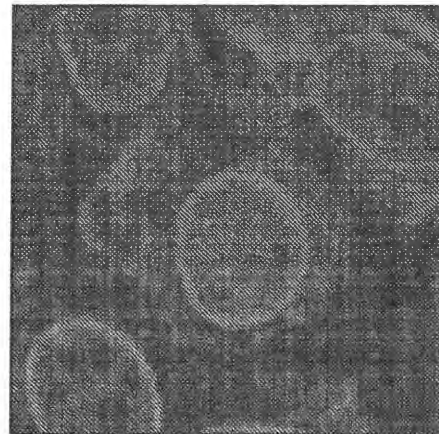
FIG. 28B

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Paste

Literature

LMNB1 (Nuclear Membrane)



DEPDC4 (Aggresome)

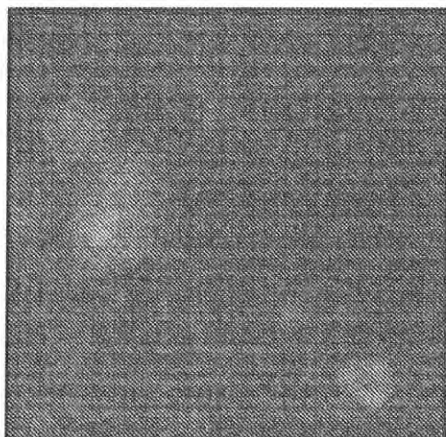


FIG. 28C

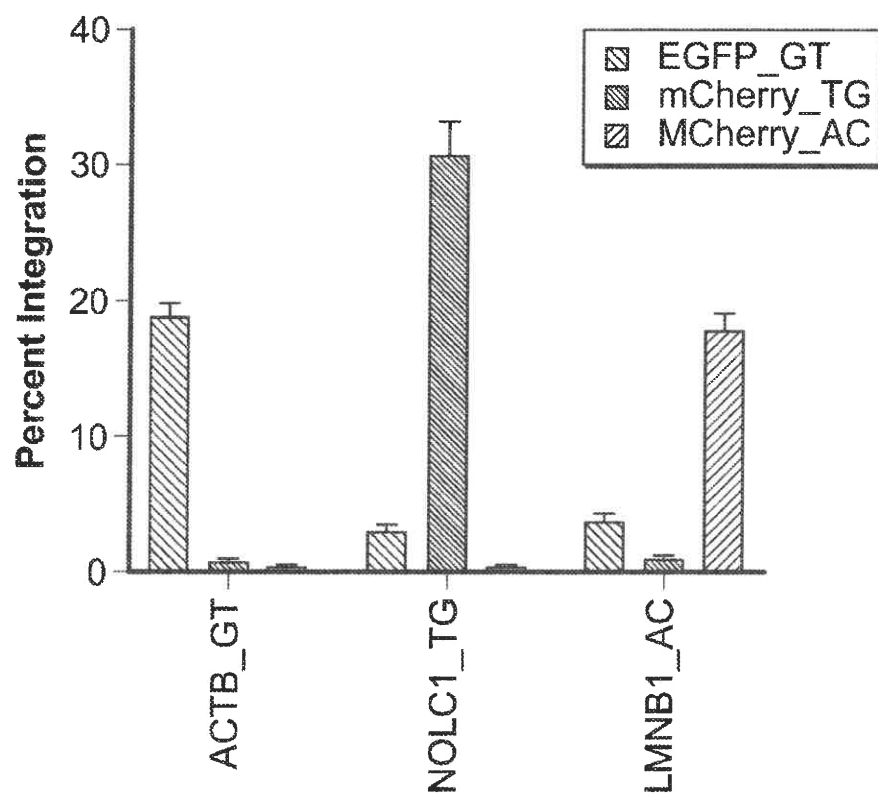


FIG. 28D

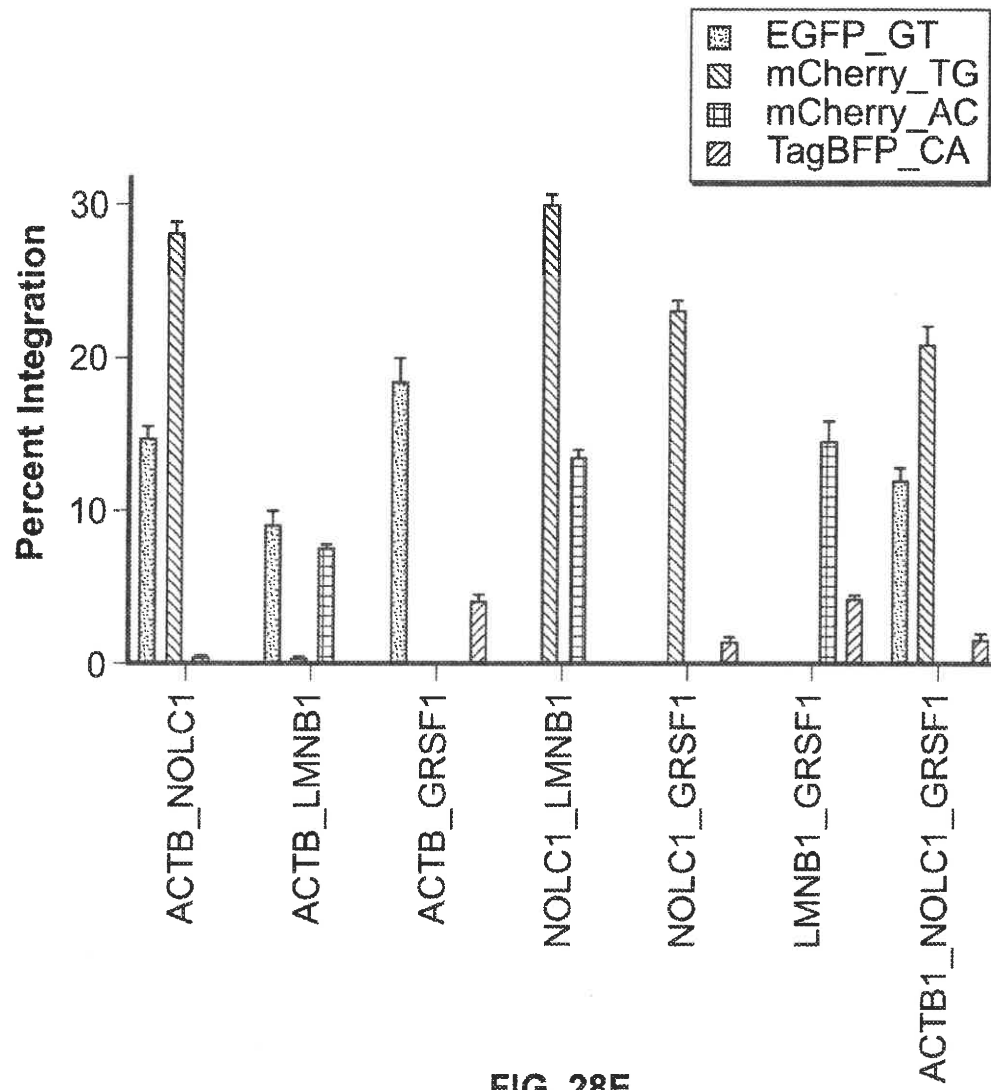


FIG. 28E

ACTB (Cytoskeletal)



NOLC1 (Fibrillar Center)

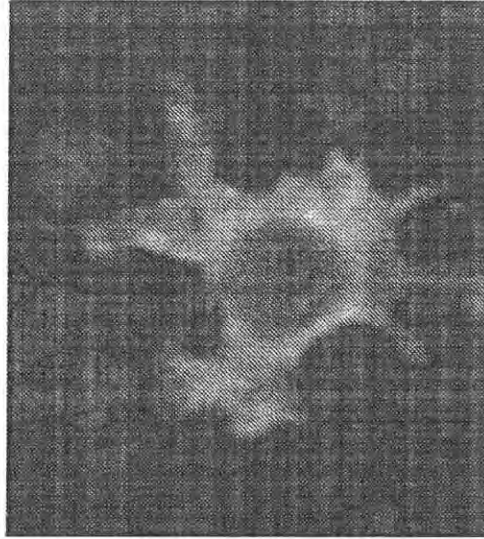
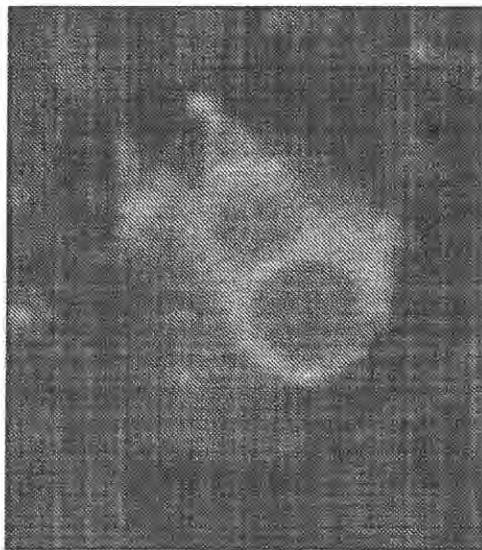


FIG. 28F

ACTB (Cytoskeletal)



LMNB1 (Nuc. Membrane)



FIG. 28G

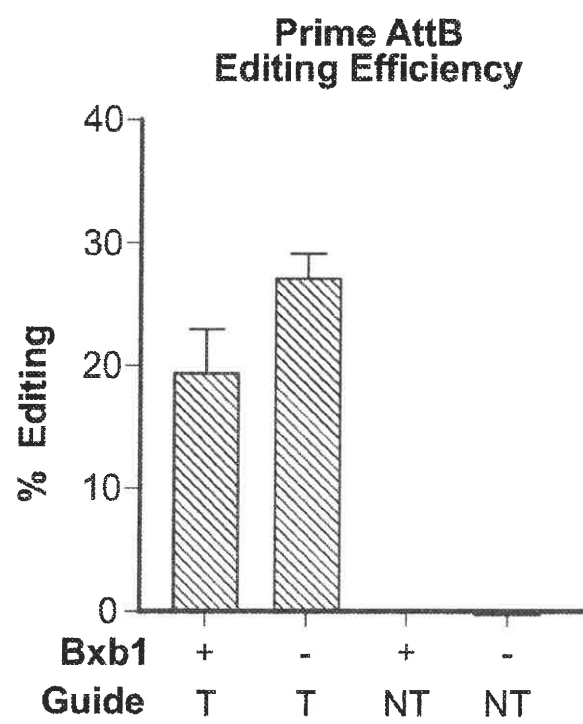


FIG. 29A

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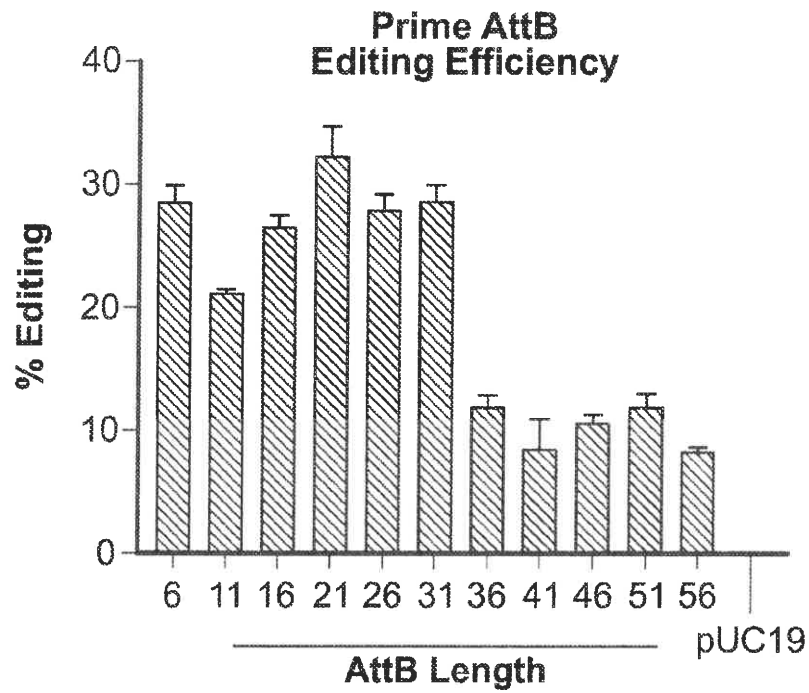


FIG. 29B

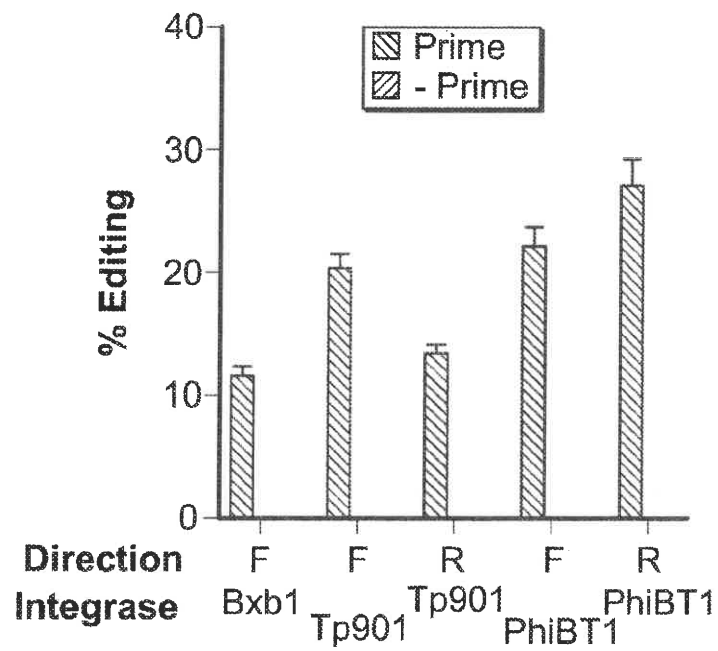


FIG. 29C

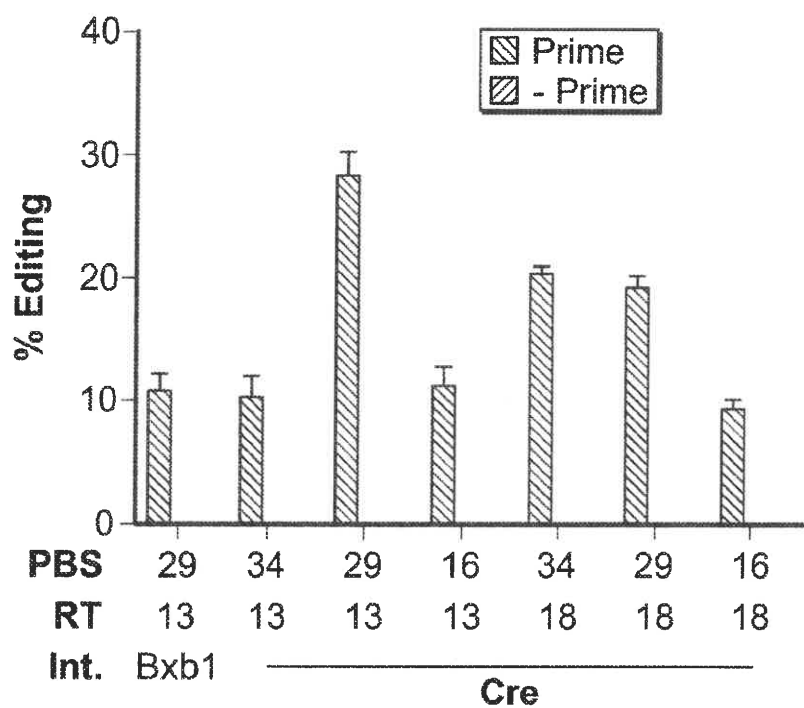


FIG. 29D

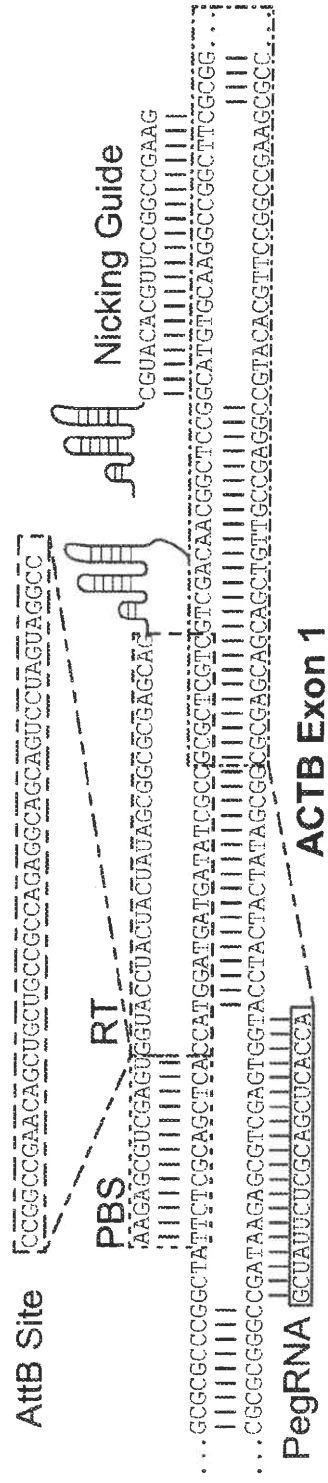
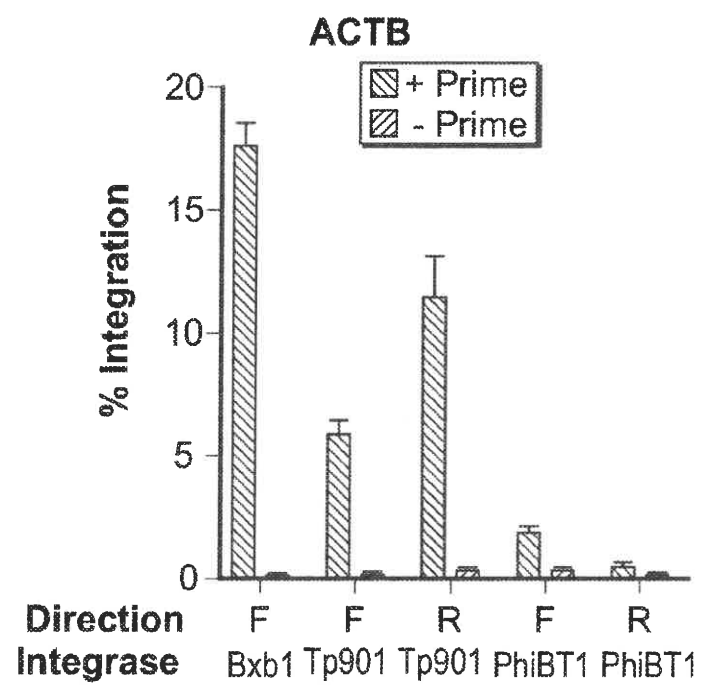


FIG. 29E

**FIG. 29F**

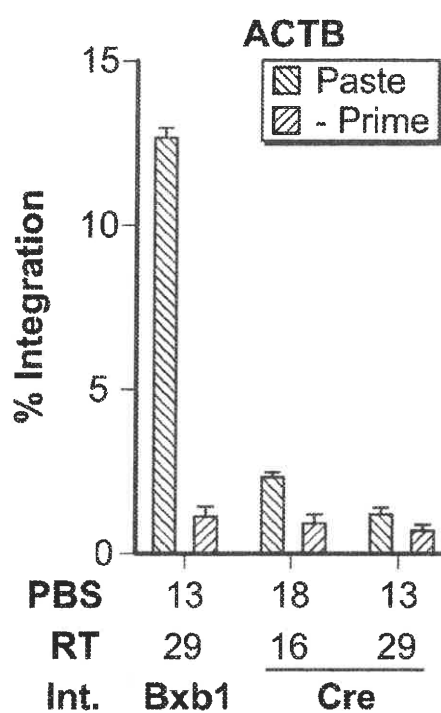


FIG. 29G

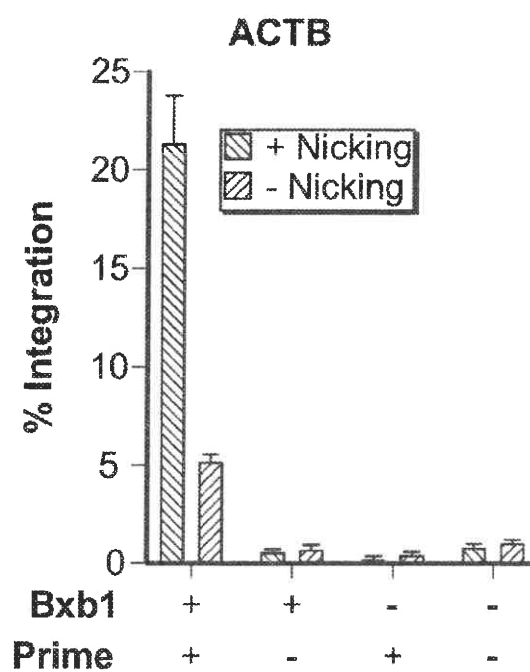


FIG. 29H

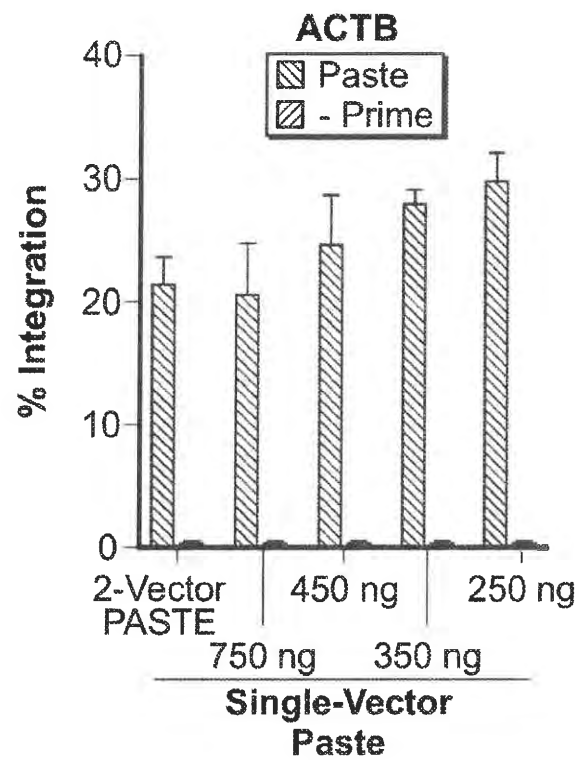


FIG. 29I

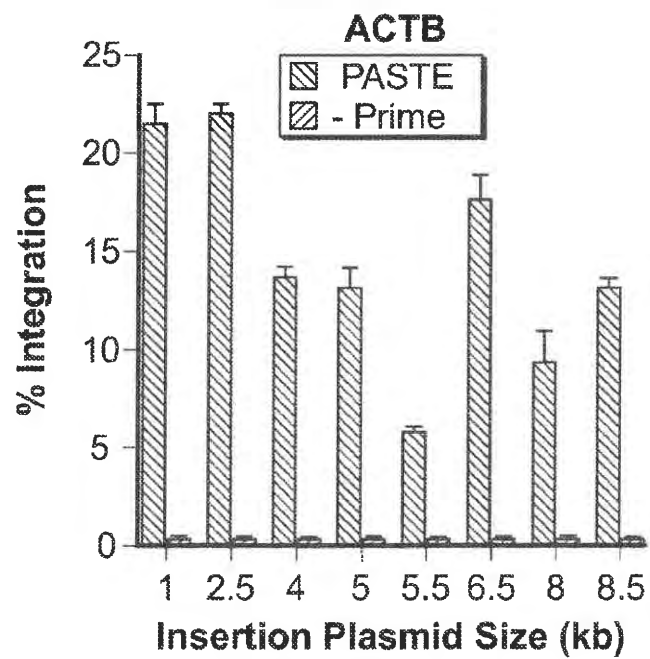


FIG. 29J

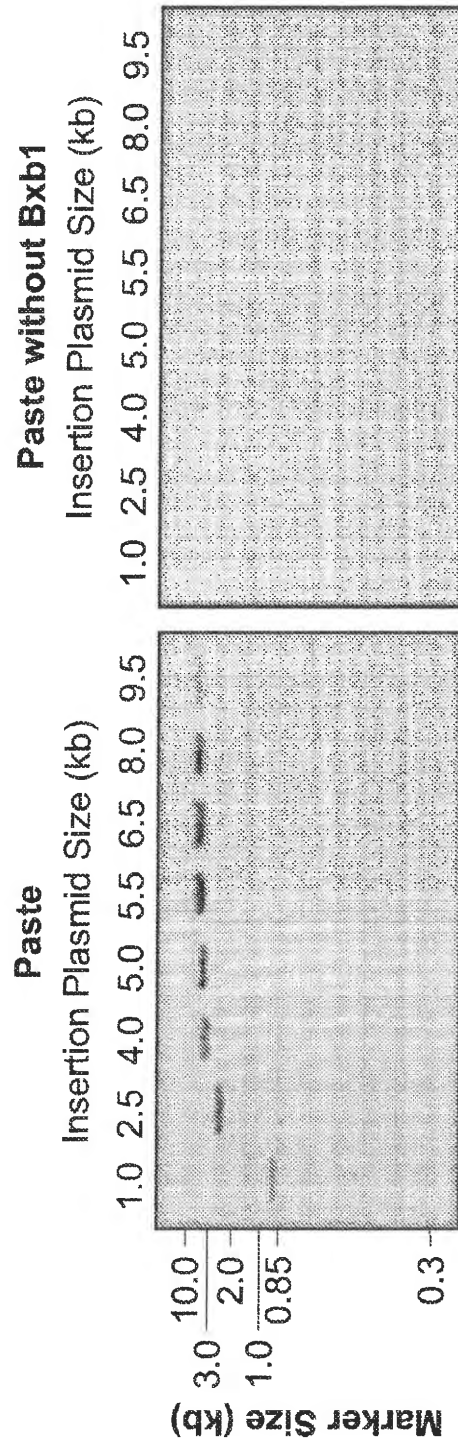


FIG. 29K

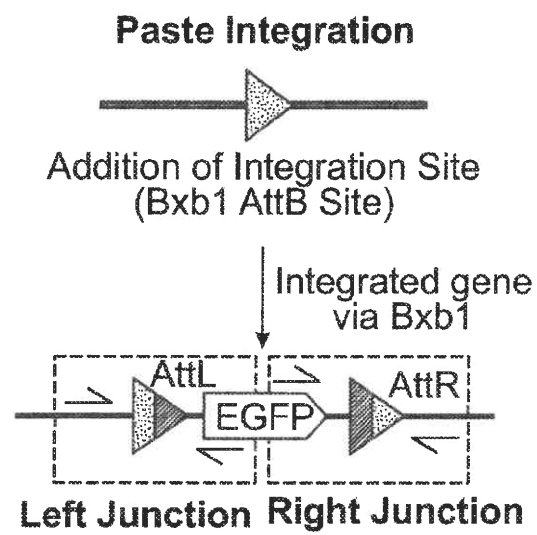
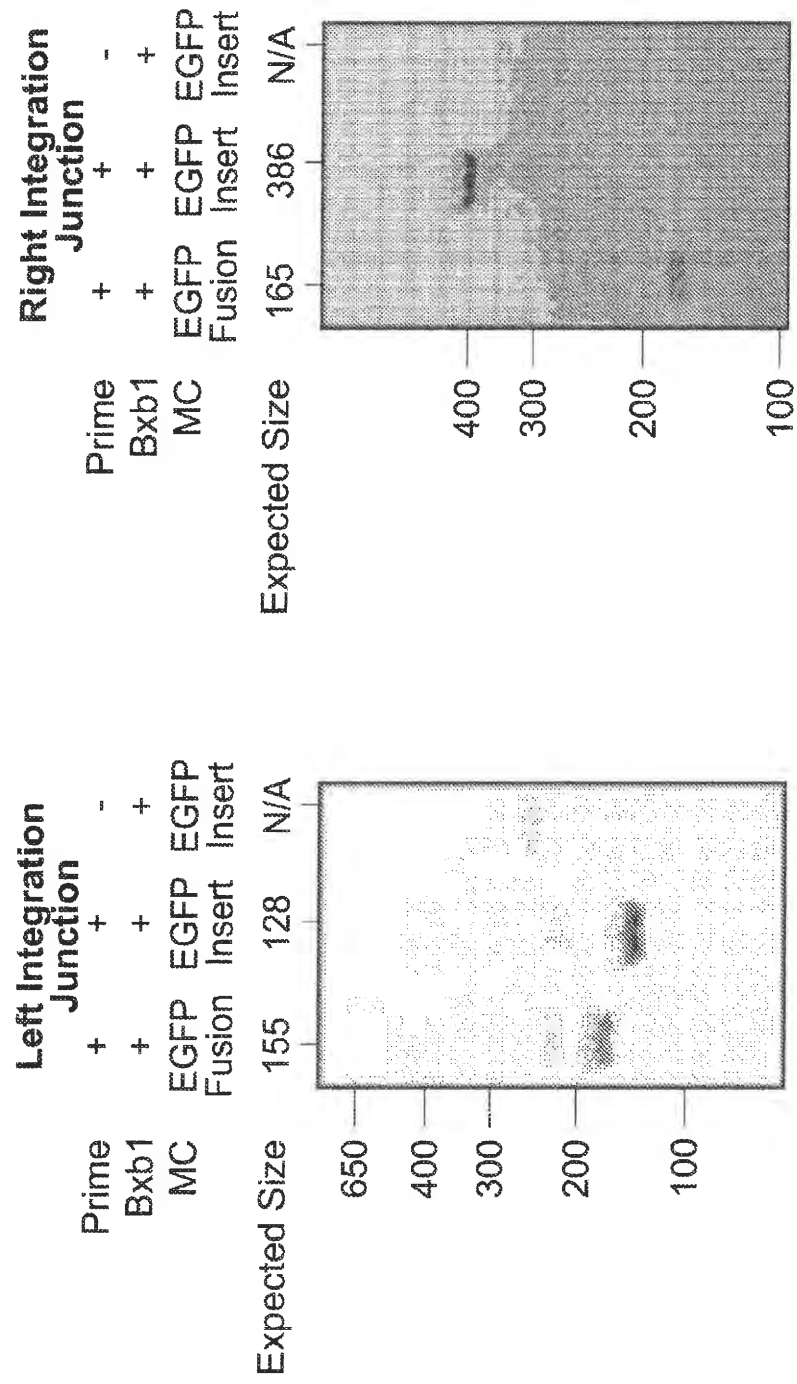


FIG. 30A



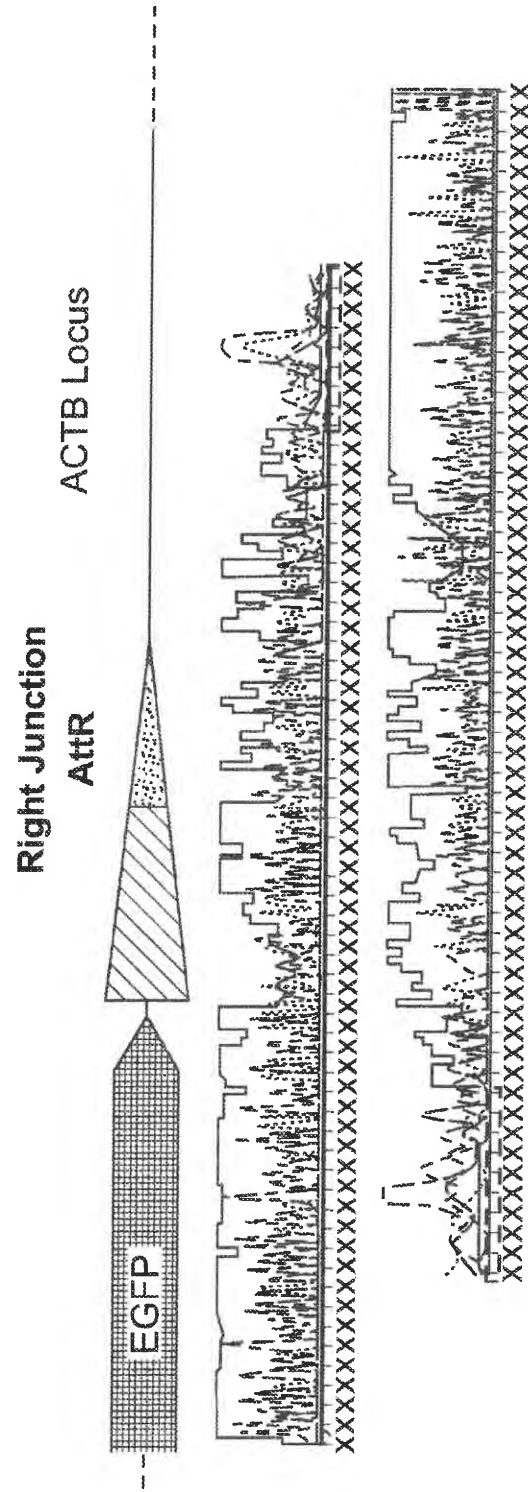


FIG. 30D

Left Junction
AttL

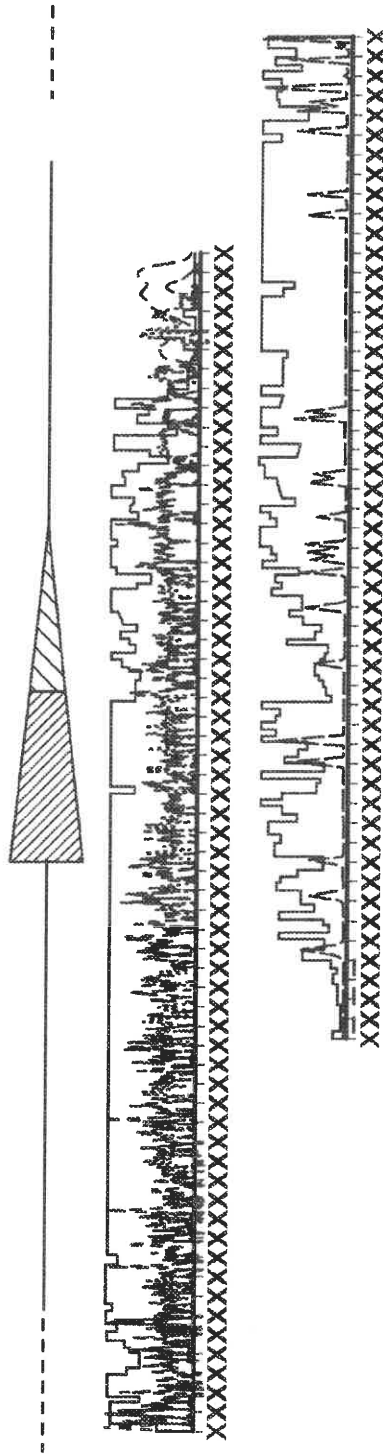
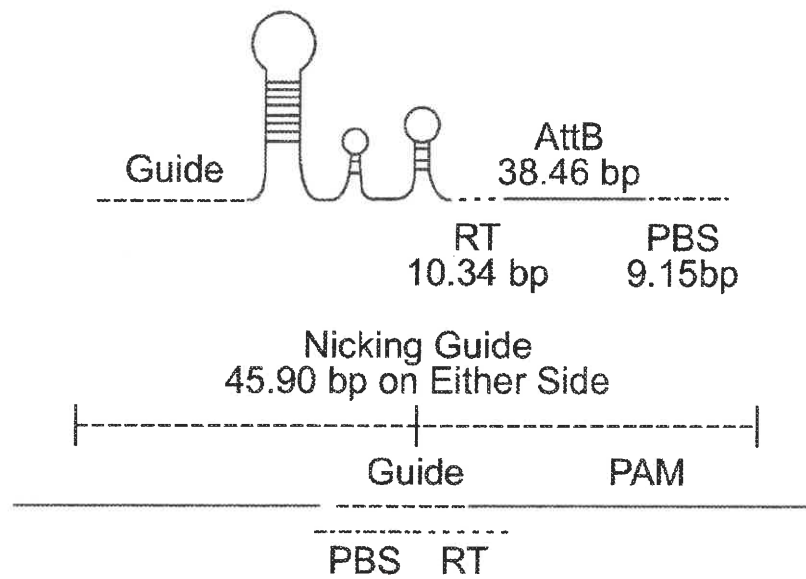


FIG. 30E

Paste PegRNA design



Target Considerations

FIG. 31A

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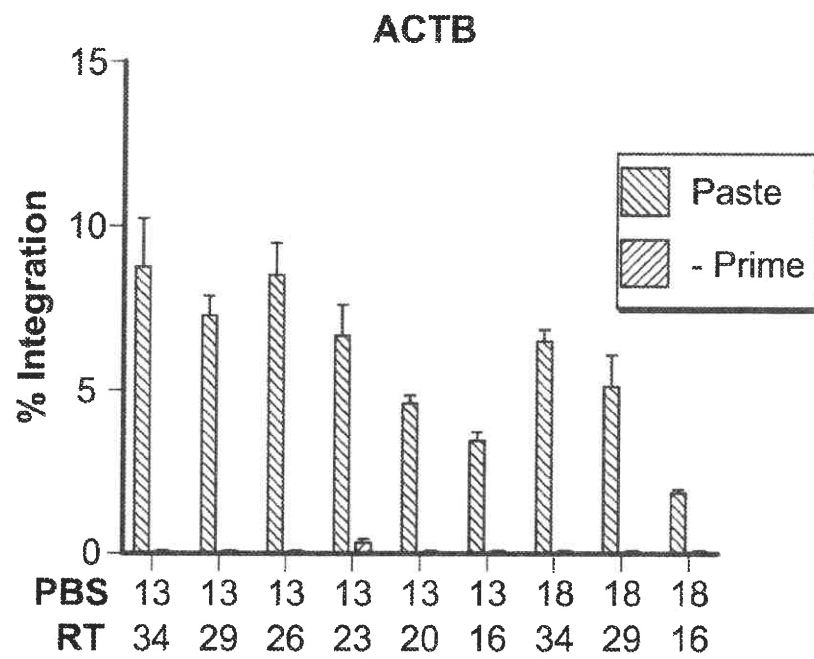


FIG. 31B

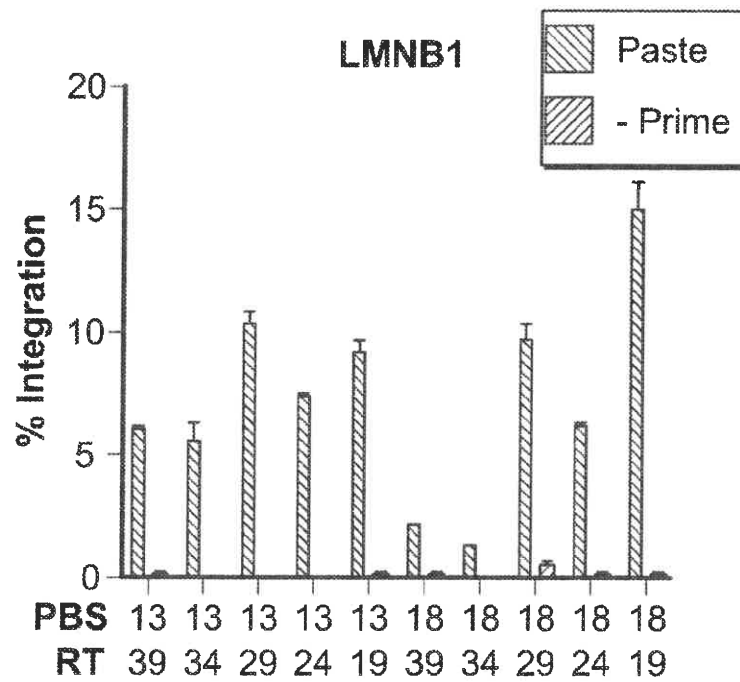


FIG. 31C

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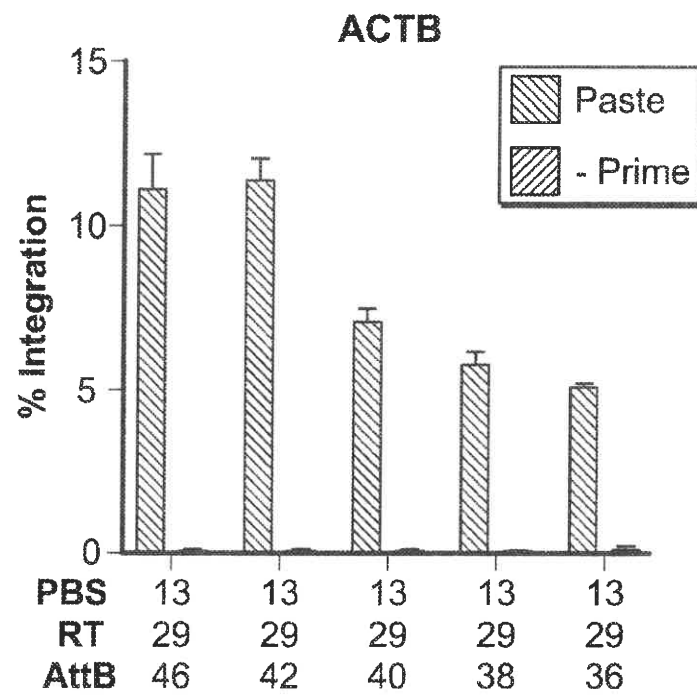


FIG. 31D

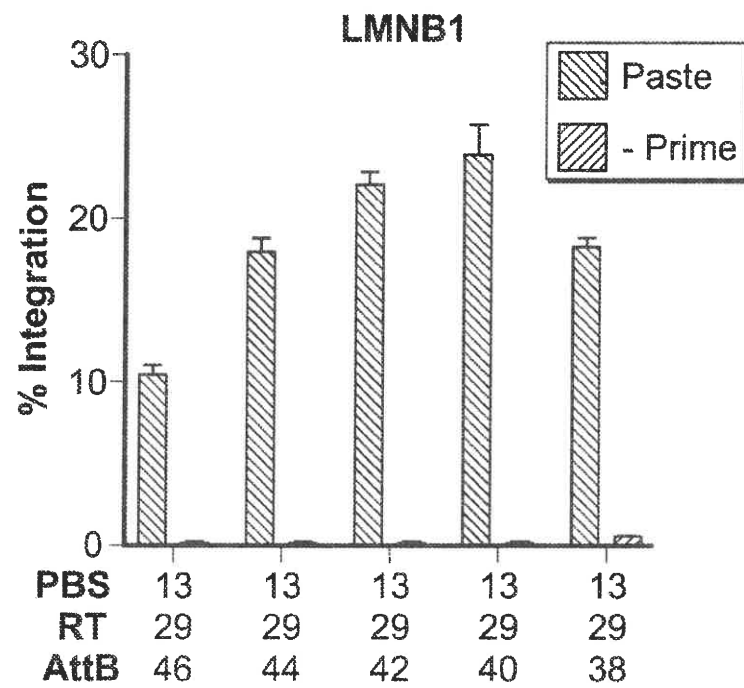
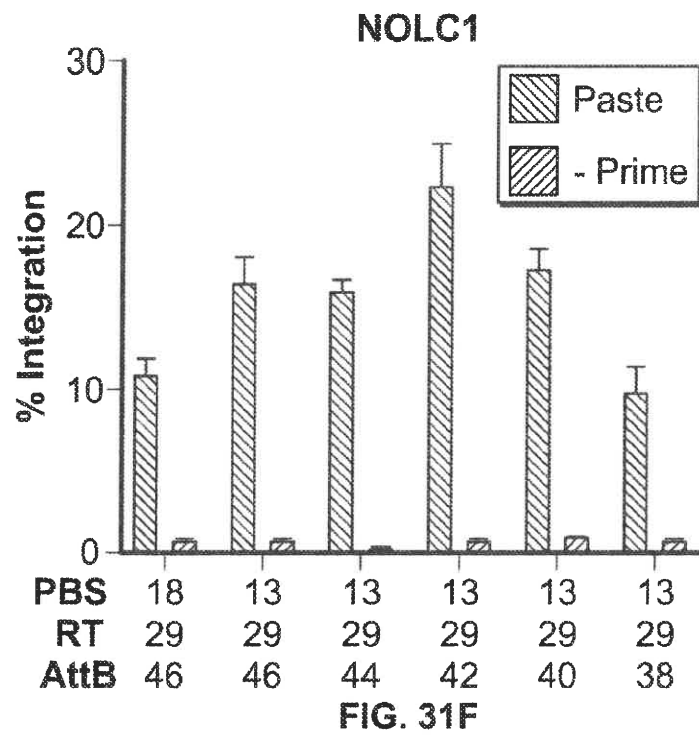
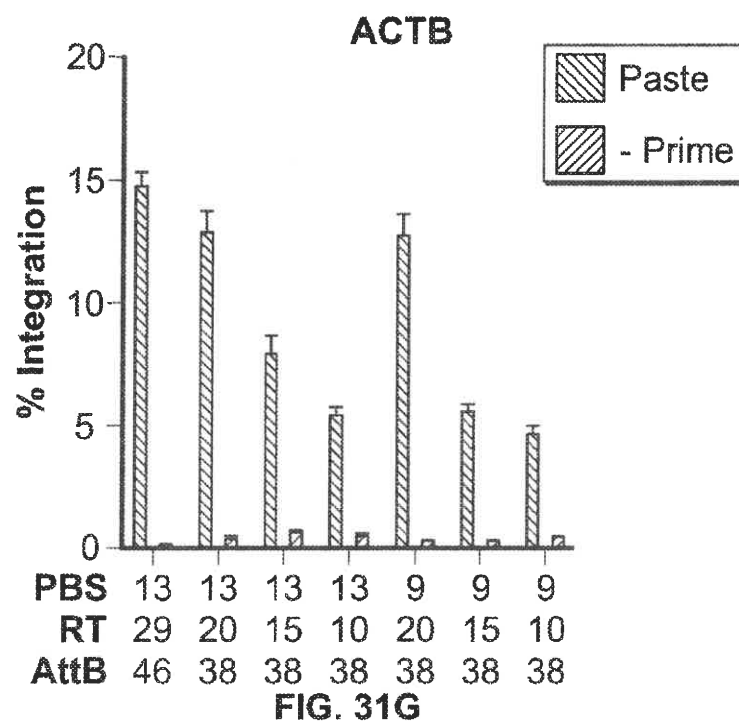


FIG. 31E

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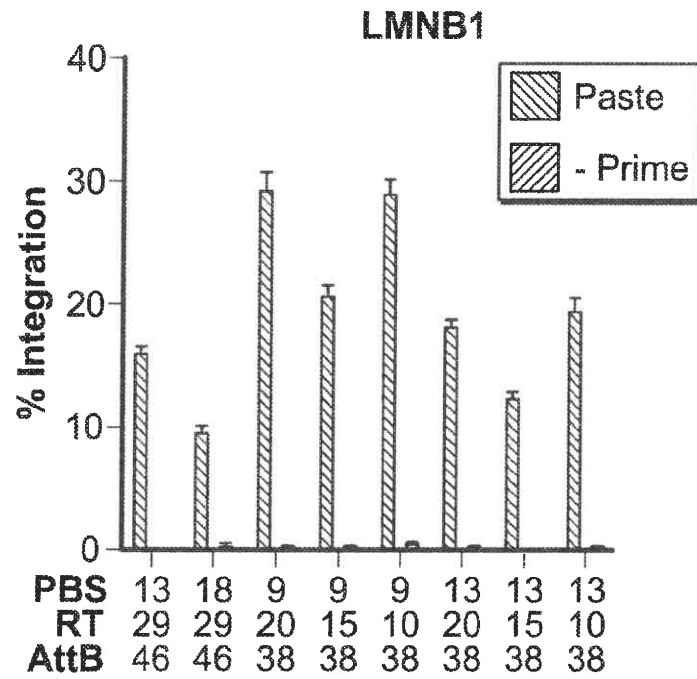


FIG. 31H

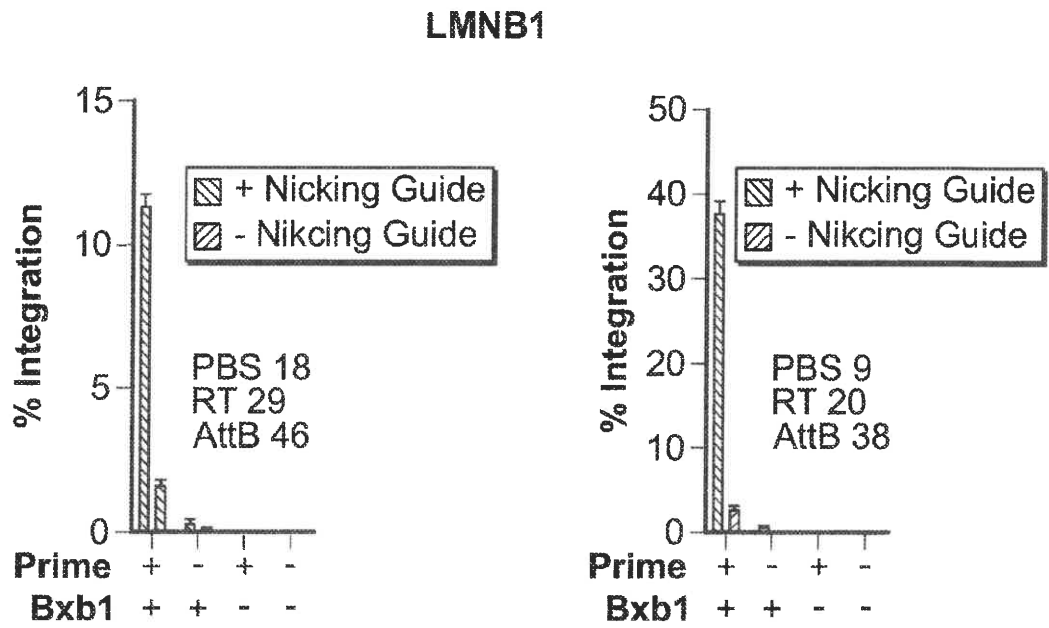


FIG. 31I

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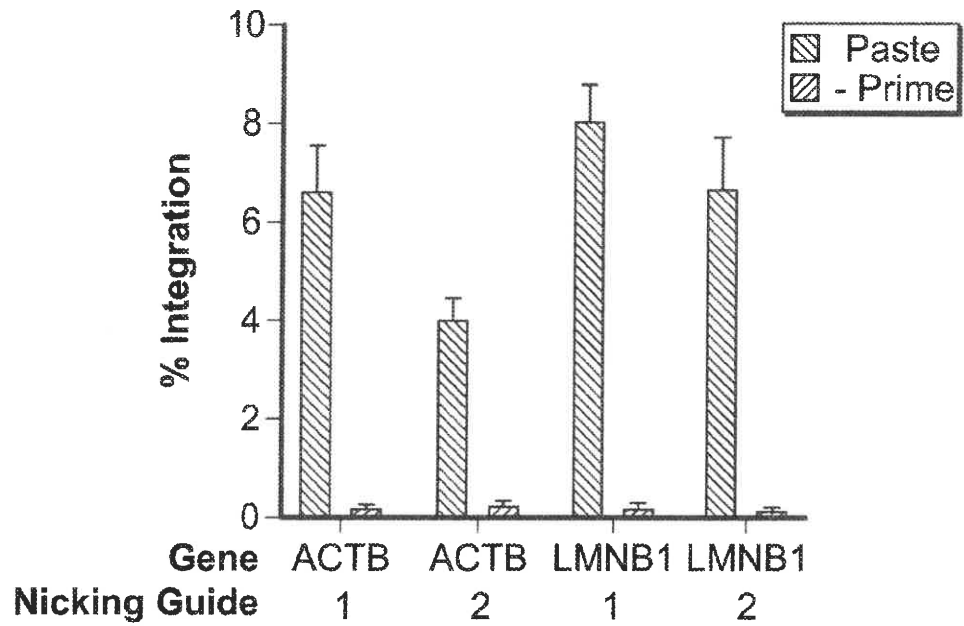


FIG. 32A

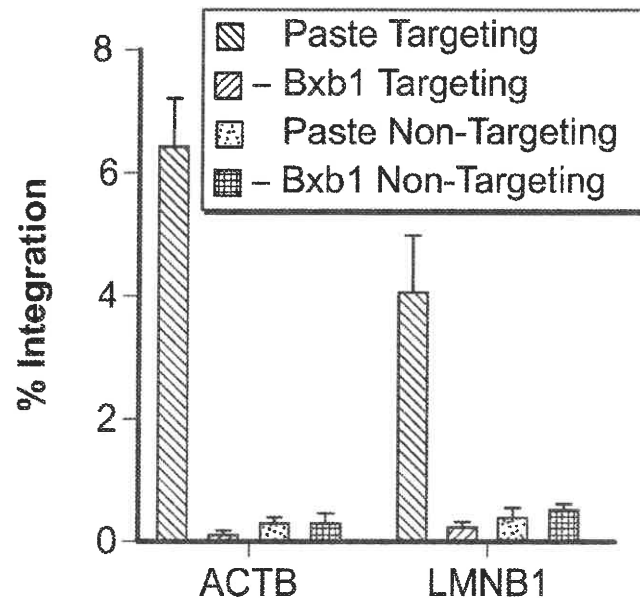


FIG. 32B

Paste with RT Mutants

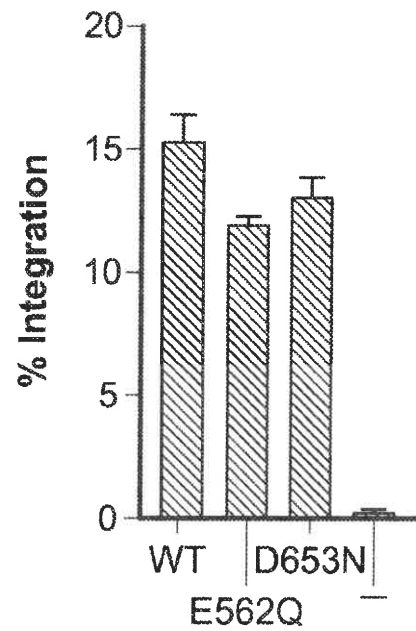


FIG. 33A

Paste with Bxb1 Mutants

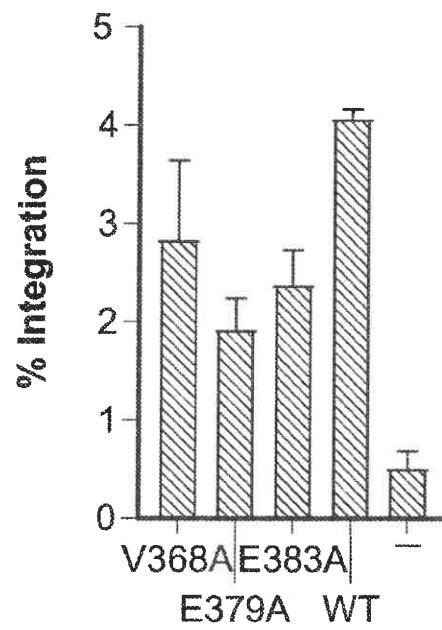


FIG. 33B

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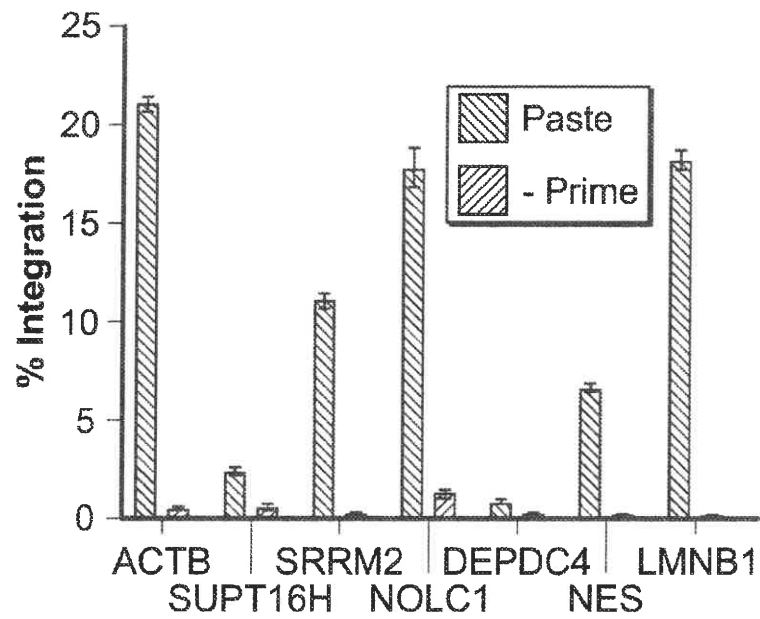


FIG. 34A

ACTB

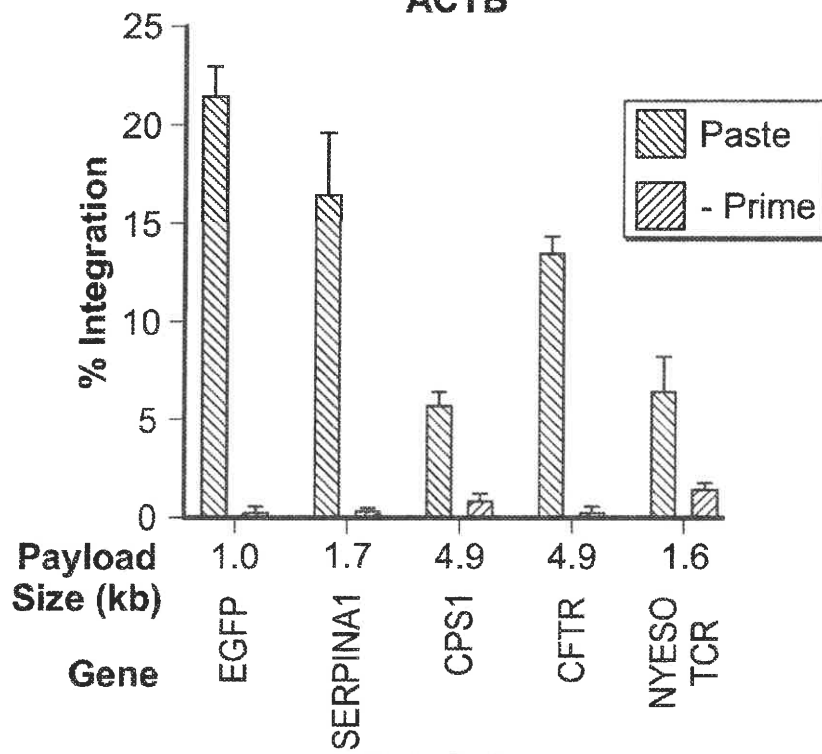


FIG. 34B

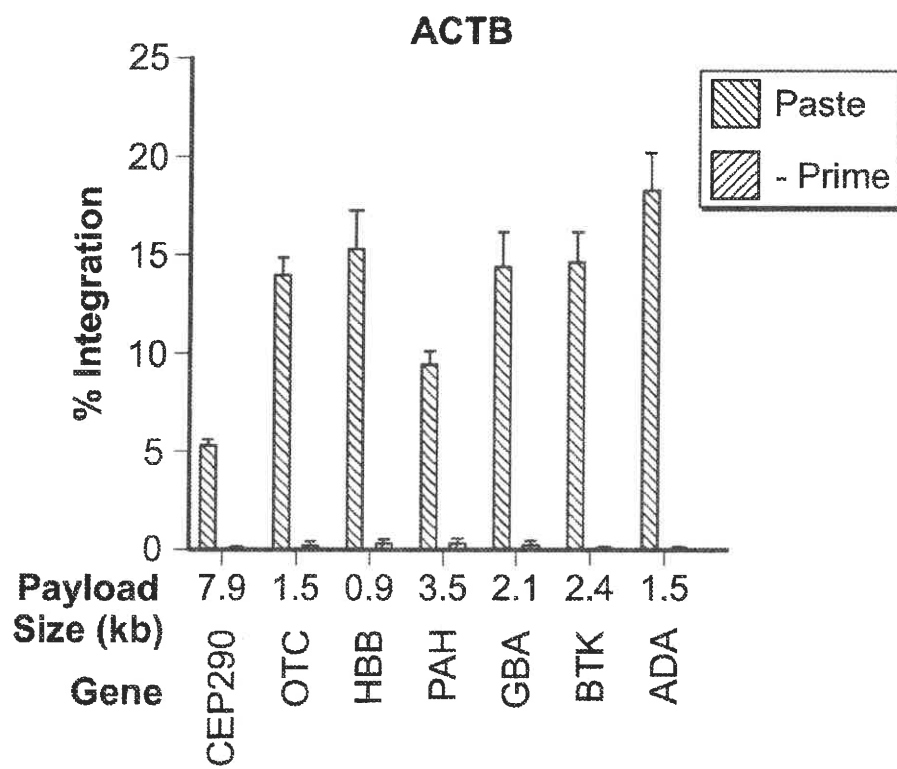


FIG. 34C

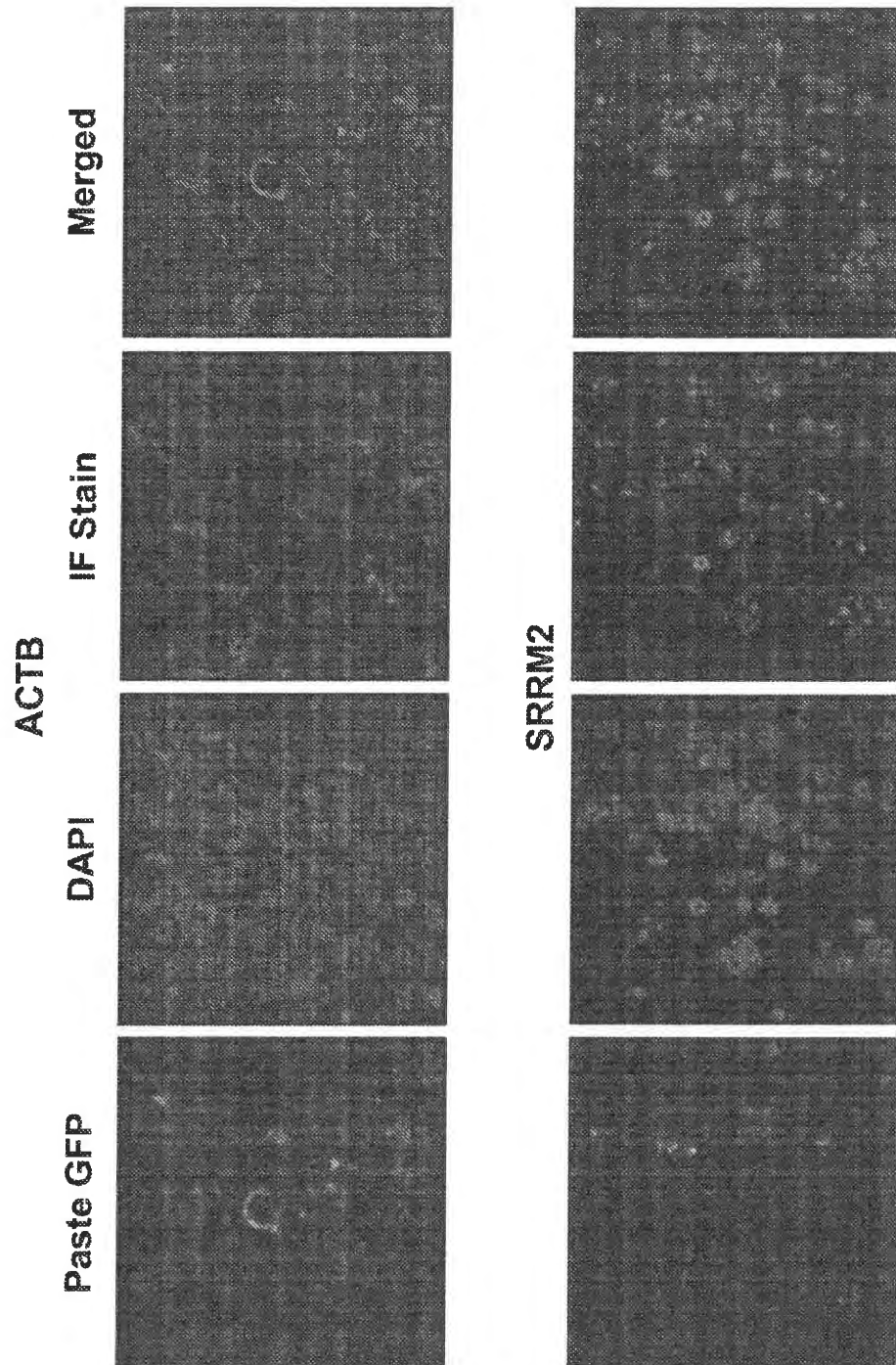


FIG. 34D

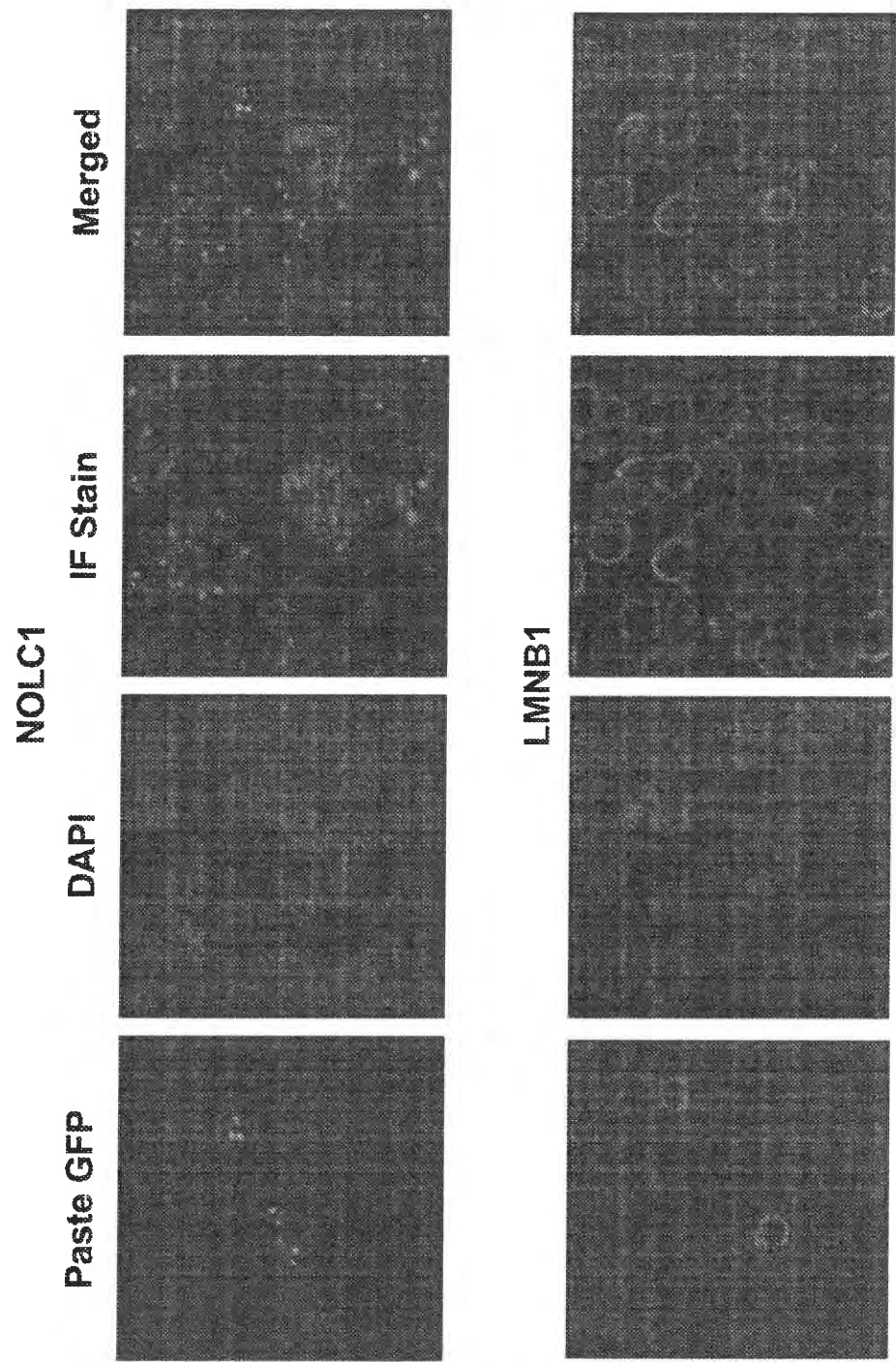


FIG. 34E

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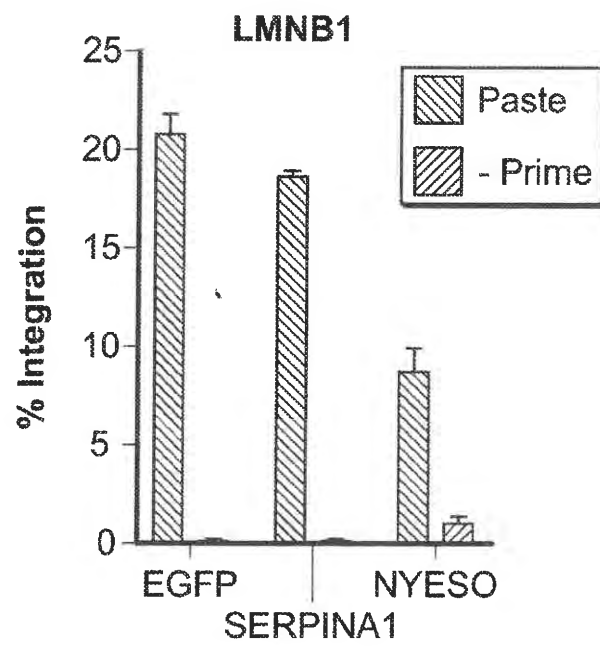


FIG. 35

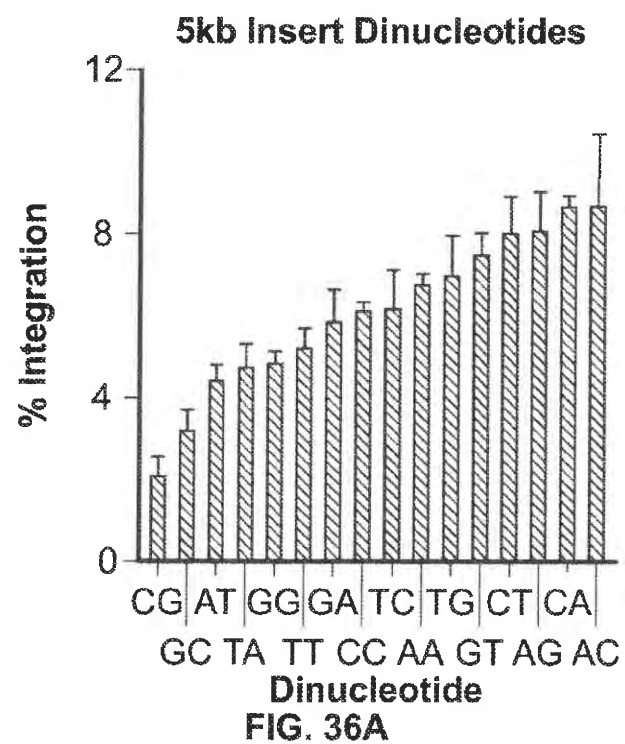


FIG. 36A

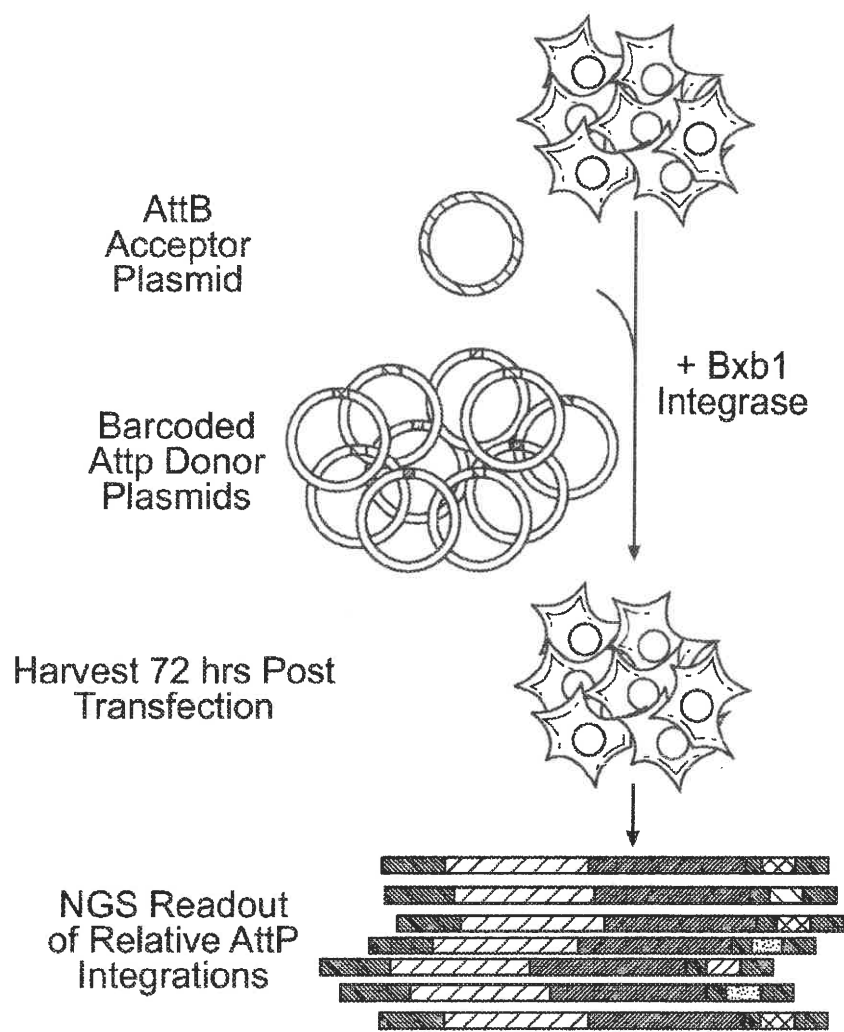


FIG. 36B

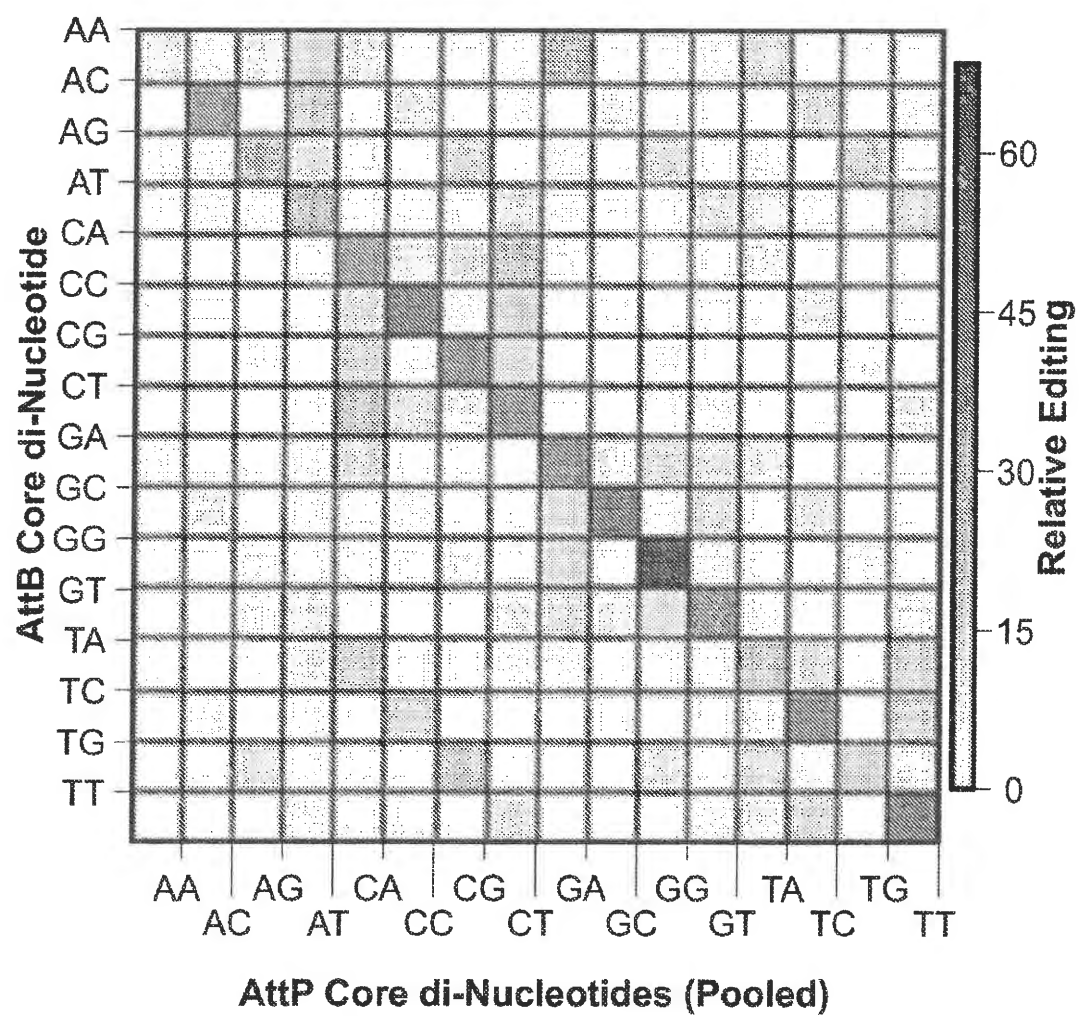


FIG. 36C

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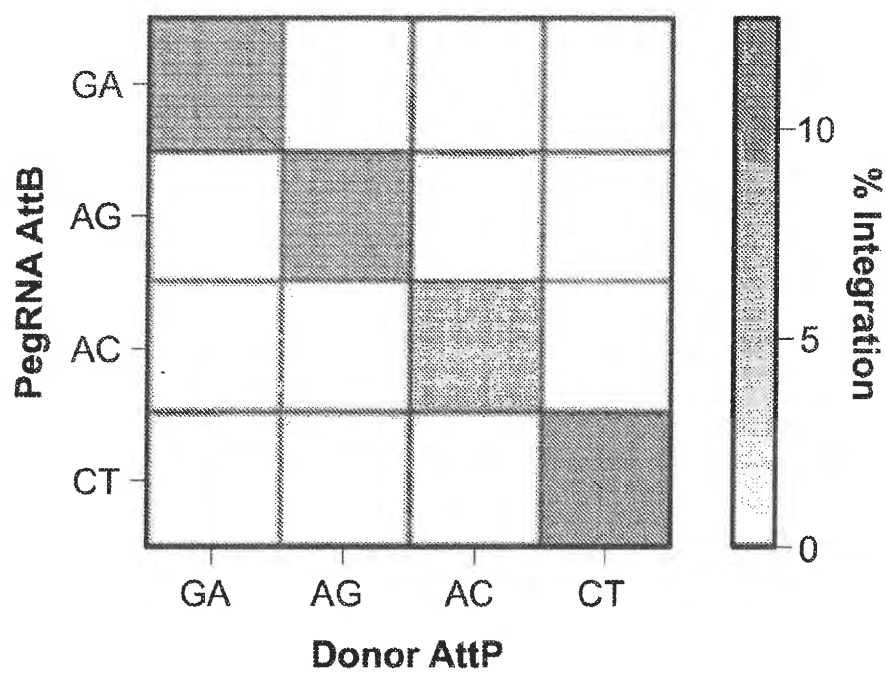


FIG. 36D

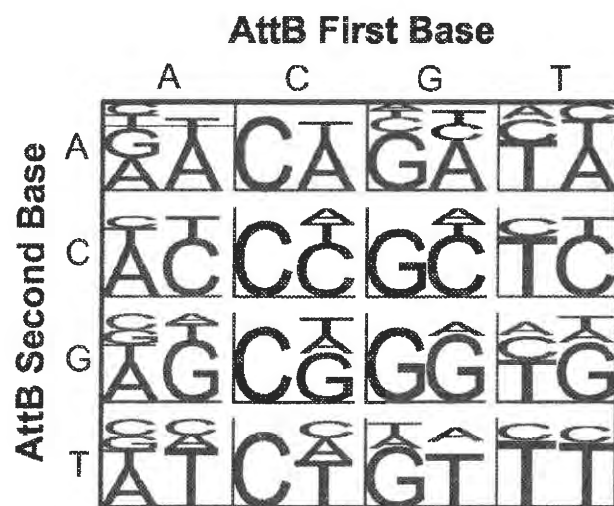


FIG. 37

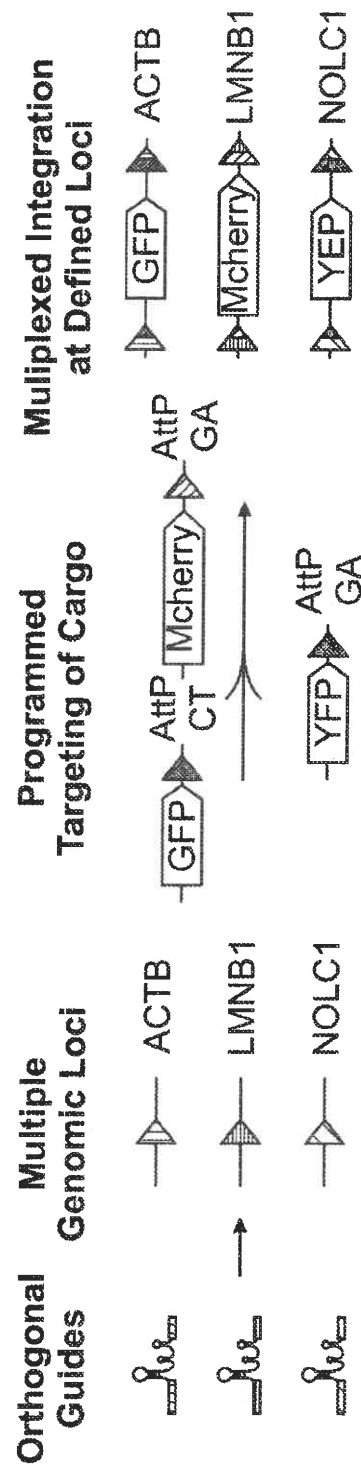


FIG. 38A

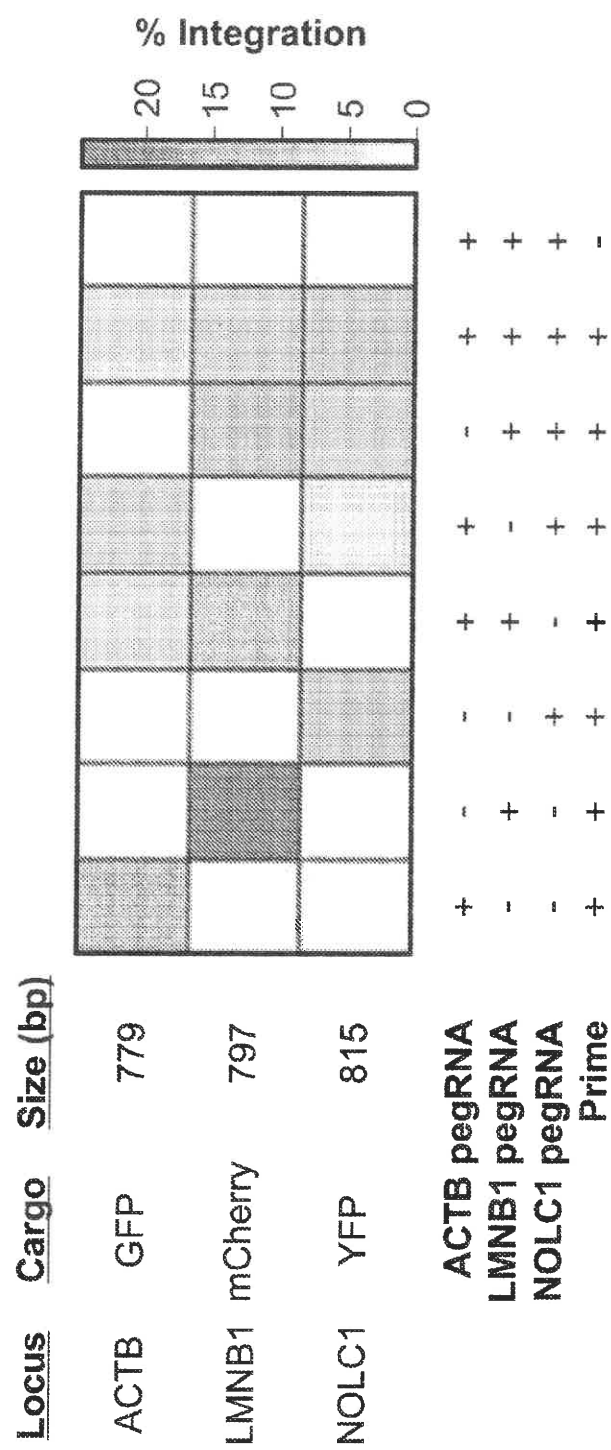


FIG. 38B

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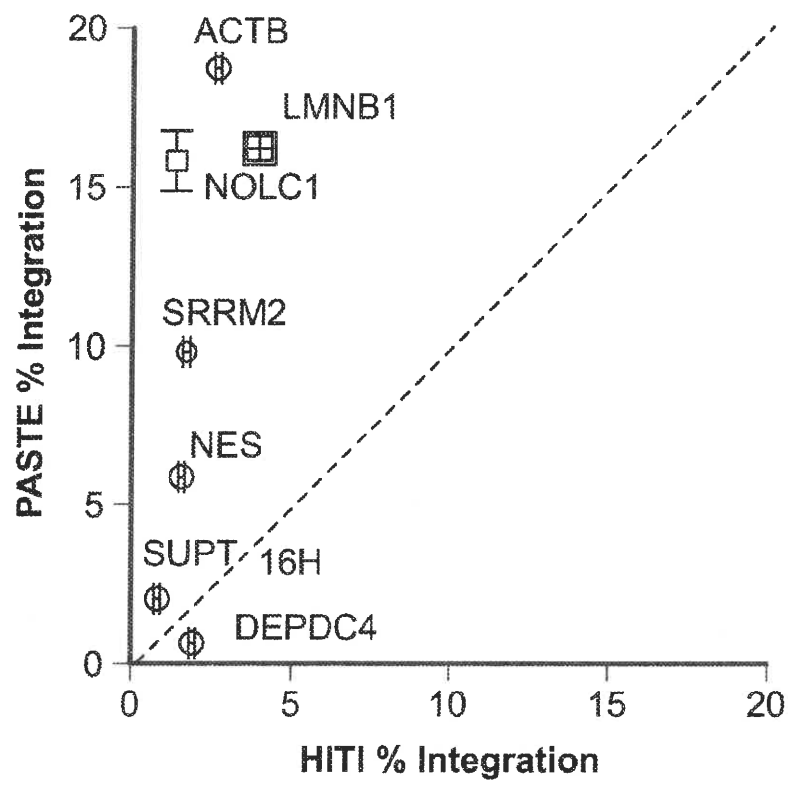


FIG. 39A

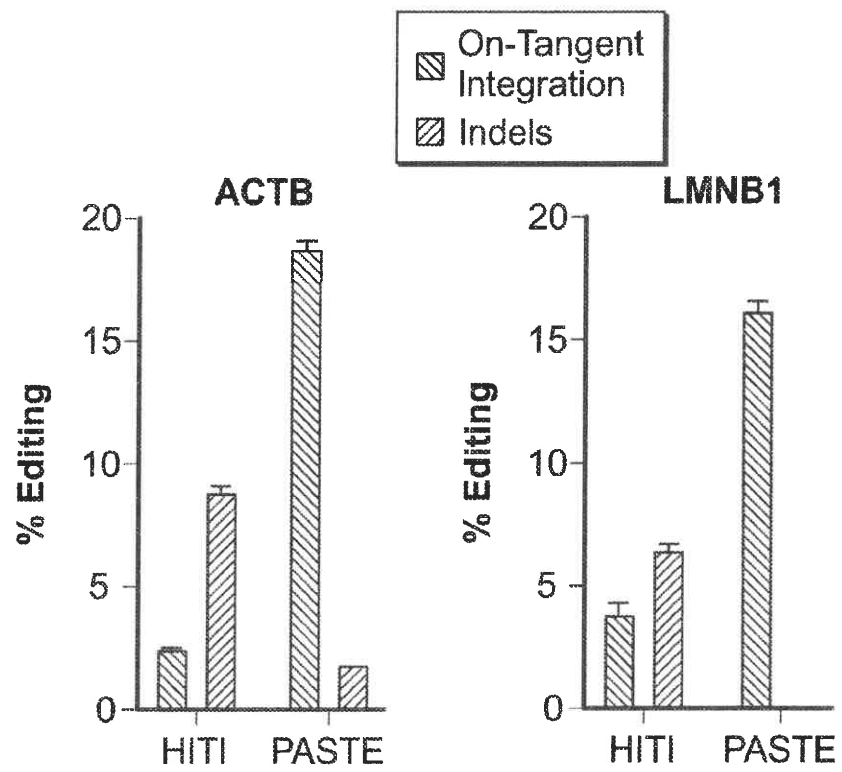


FIG. 39B

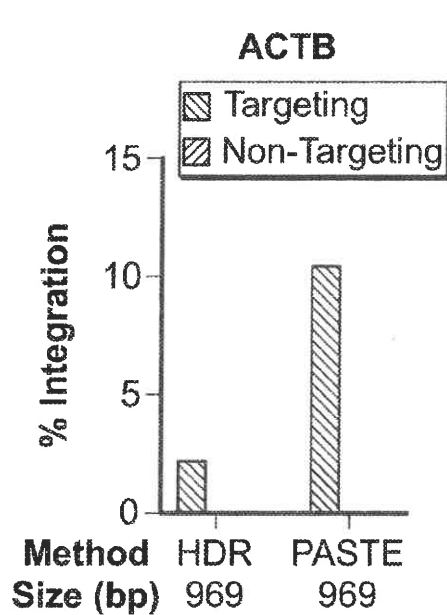


FIG. 39C

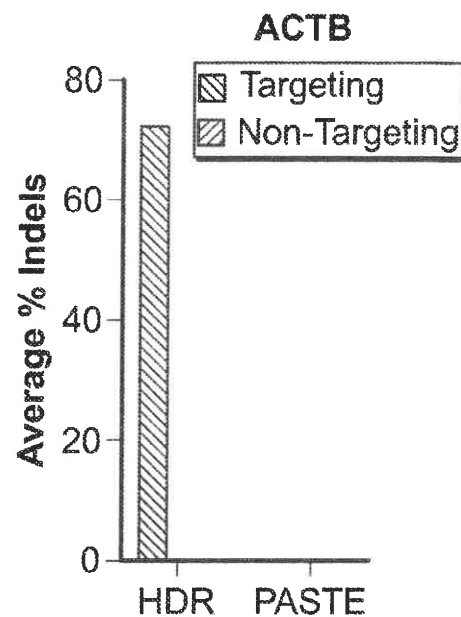


FIG. 39D

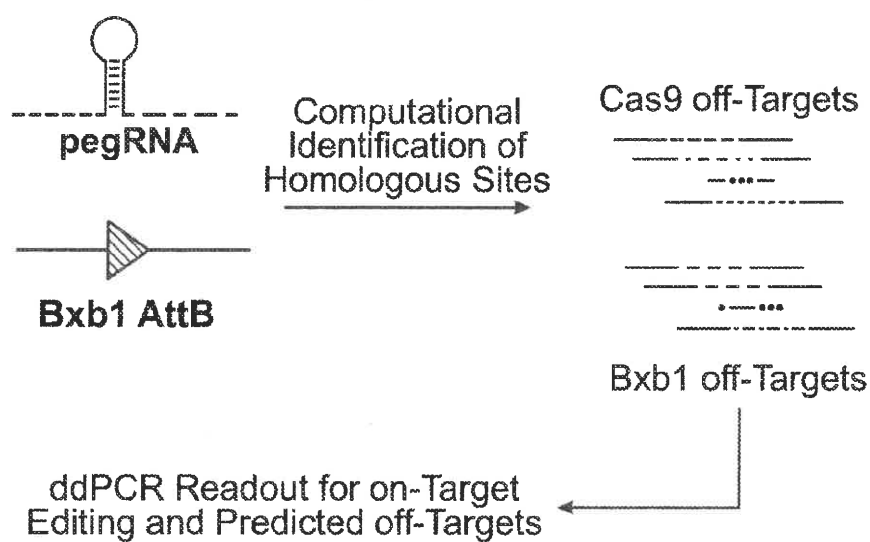
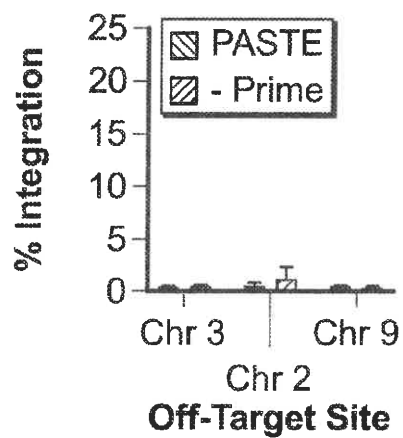
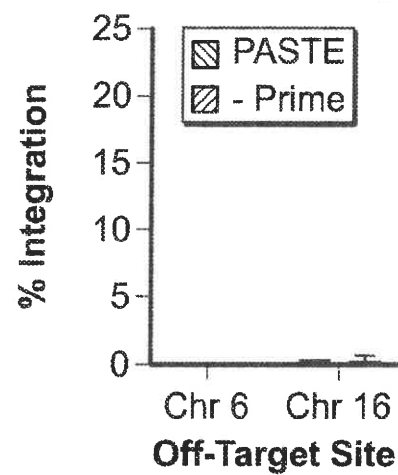
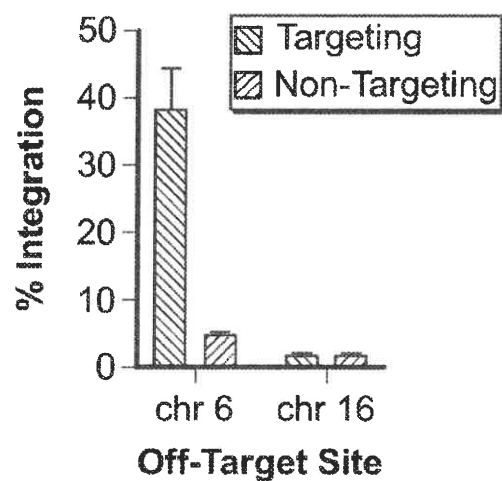


FIG. 39E

Bxb1 AttB Off-Targets**FIG. 39F****ACTB PASTE Cas9
Guide off-Targets****FIG. 39G****ACTB HITI Cas9
Guide off-Targets****FIG. 39H**

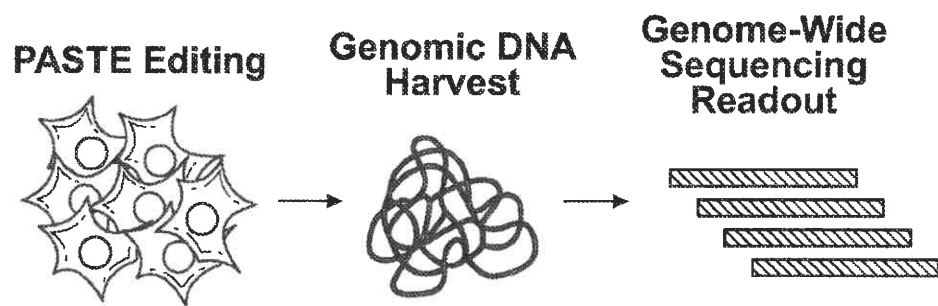


FIG. 39I

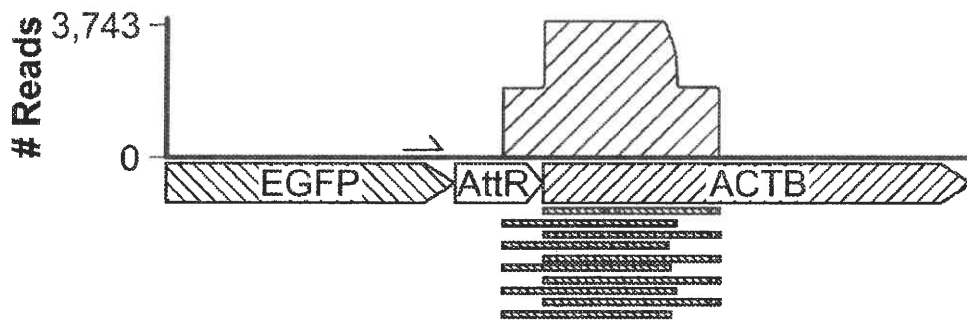


FIG. 39J

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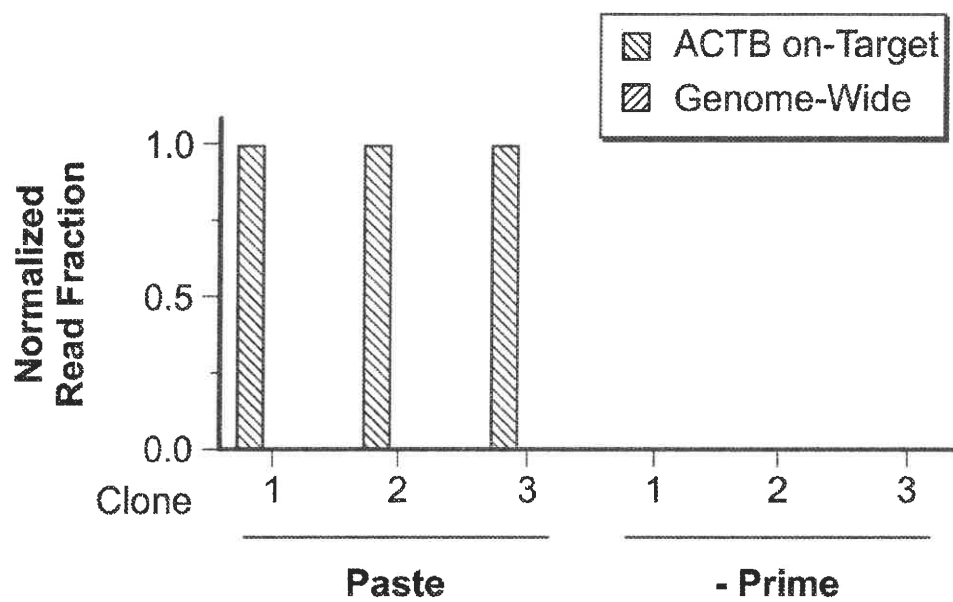


FIG. 39K

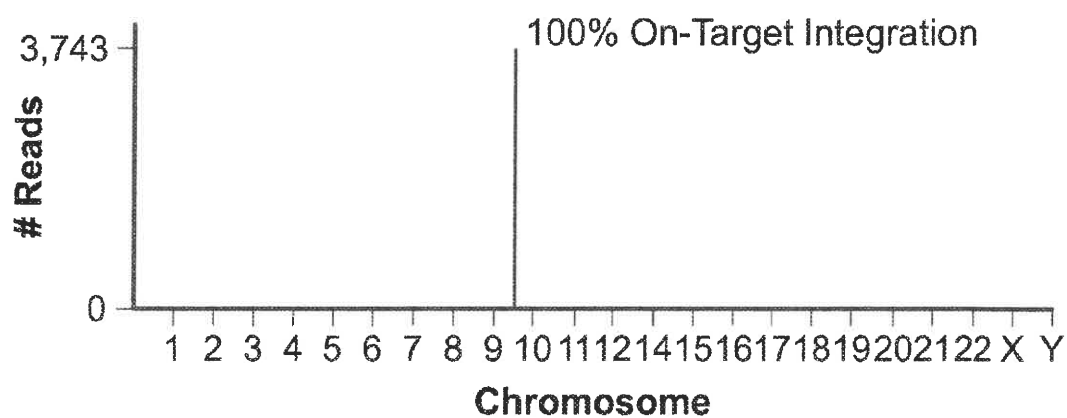


FIG. 39L

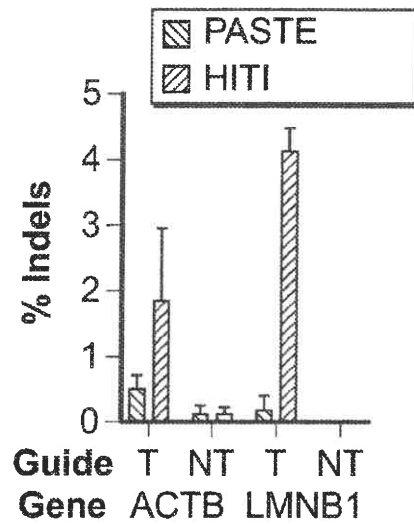


FIG. 40A

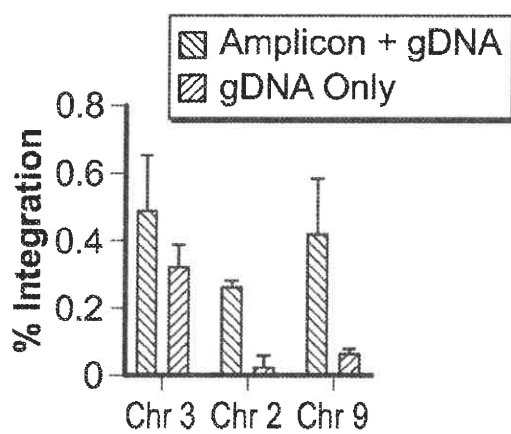
**Bxb1 Off-Target
Control Amplicons**

FIG. 40B

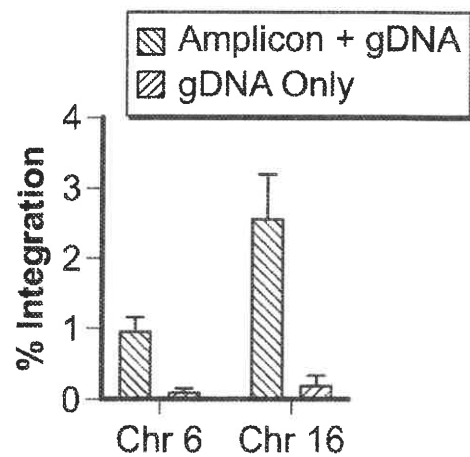
**PASTE Cas9 Off-Target
Control Amplicons**

FIG. 40C

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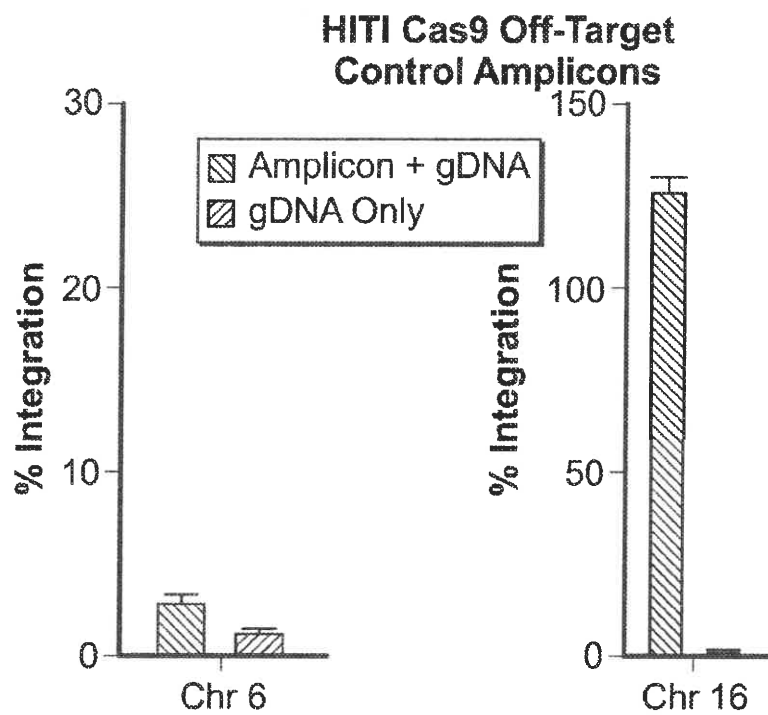


FIG. 40D

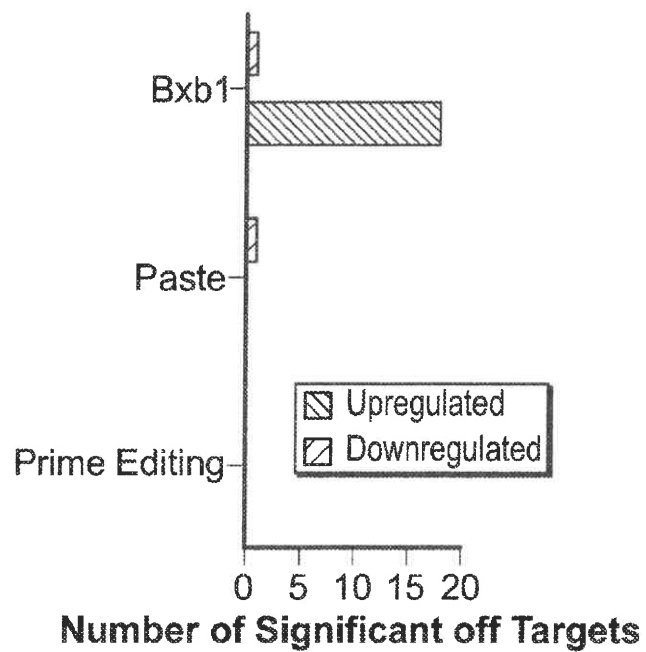


FIG. 41A

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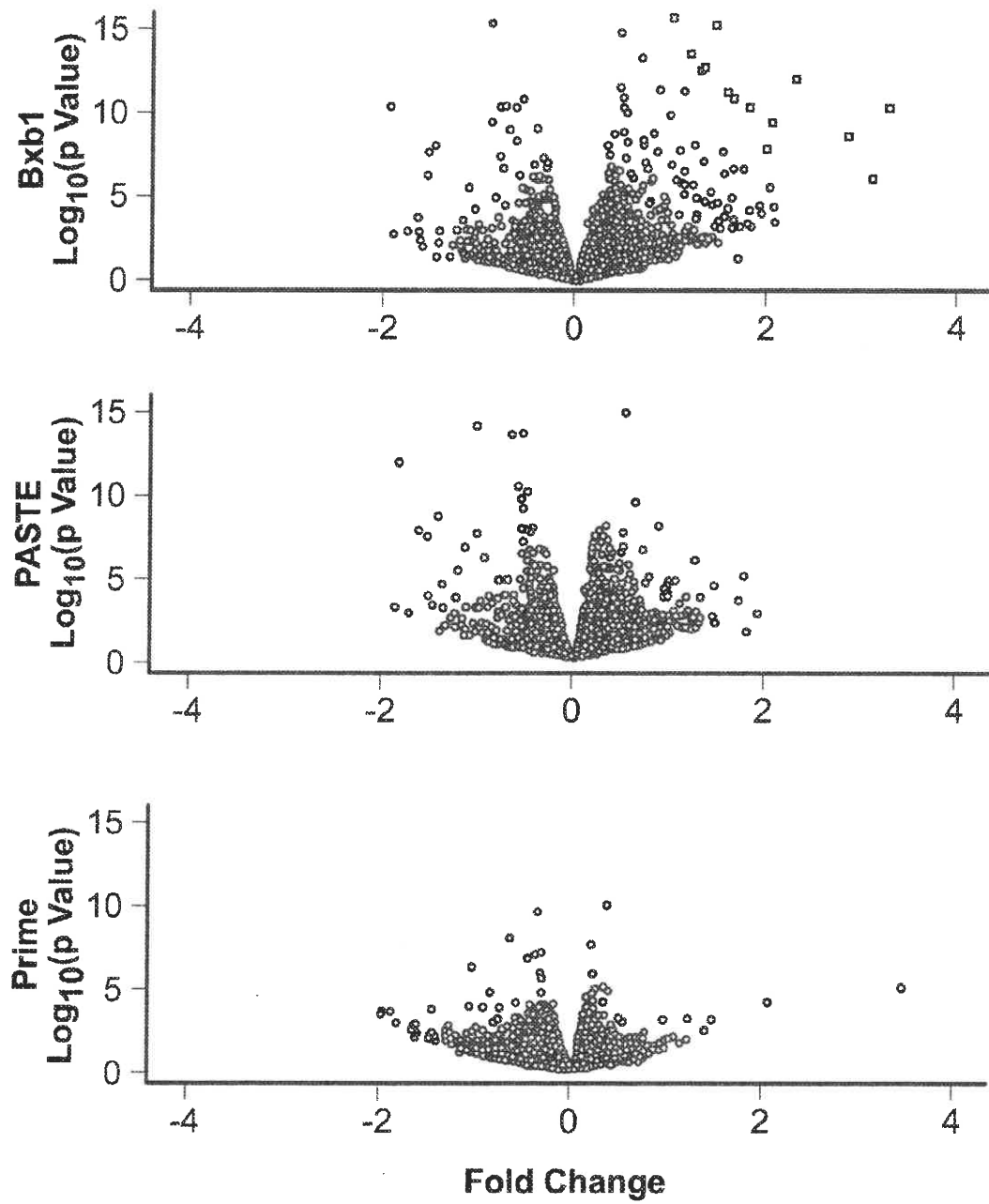
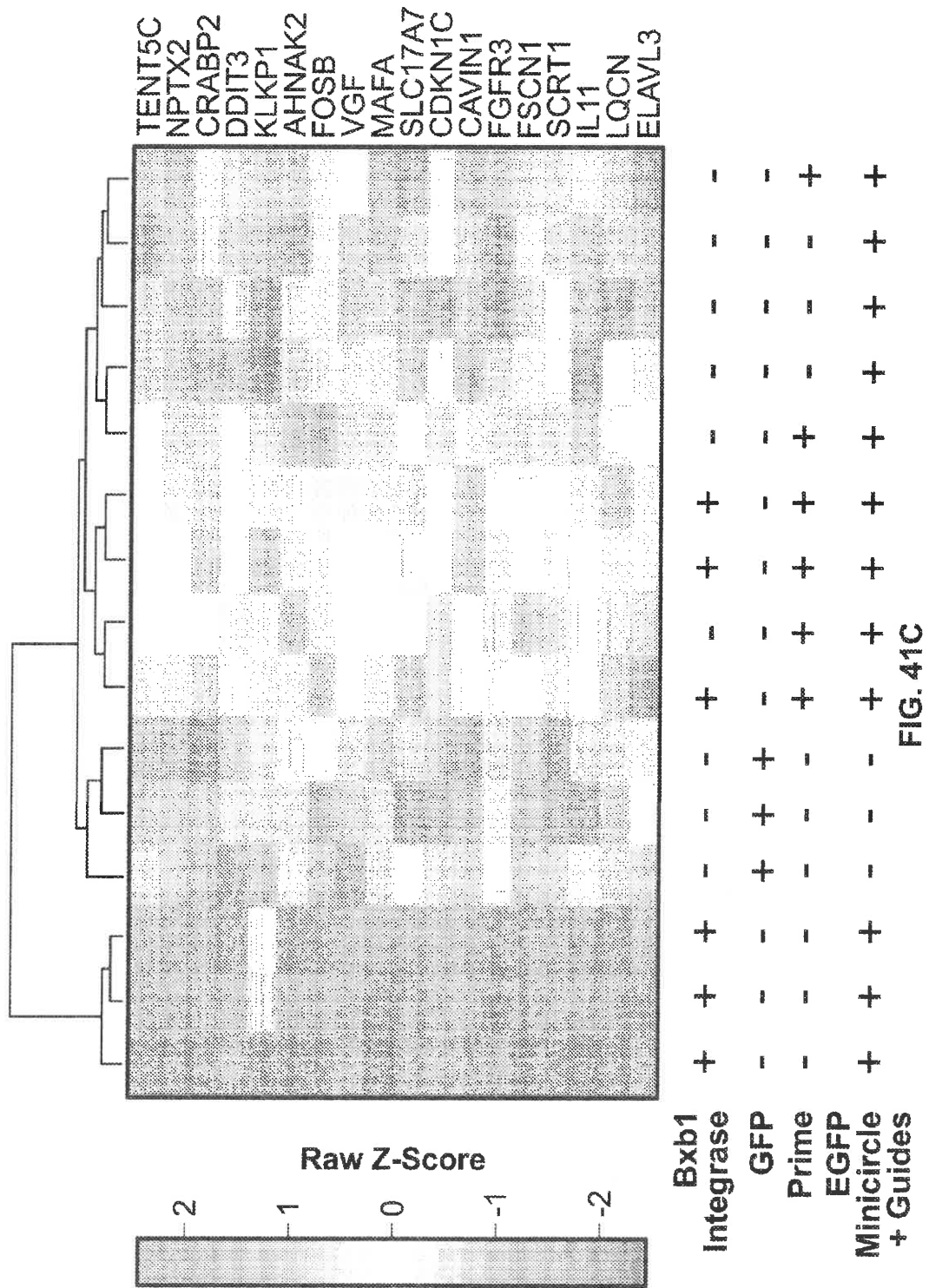


FIG. 41B



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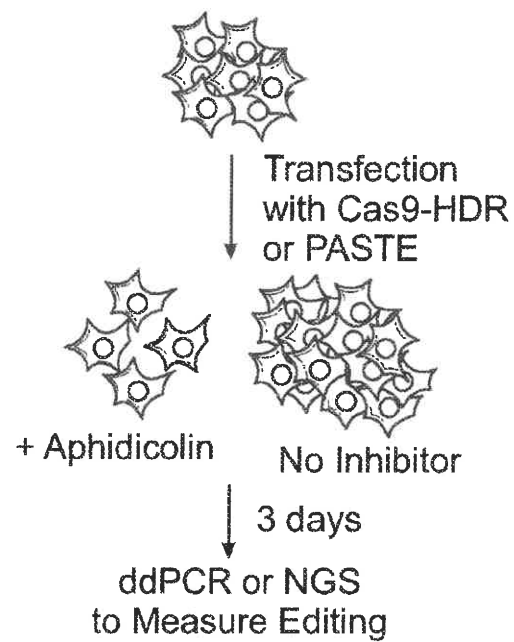


FIG. 42A

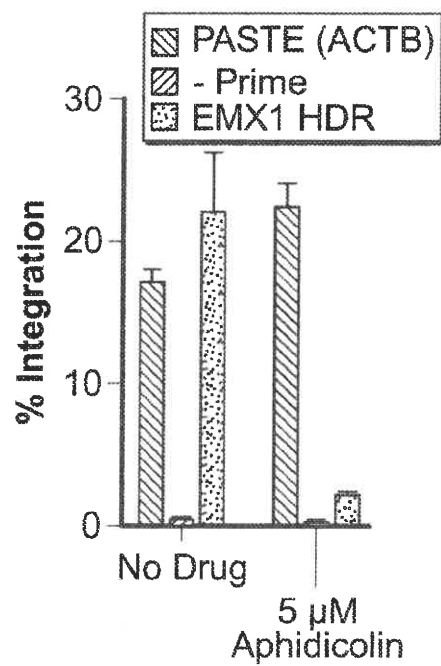


FIG. 42B

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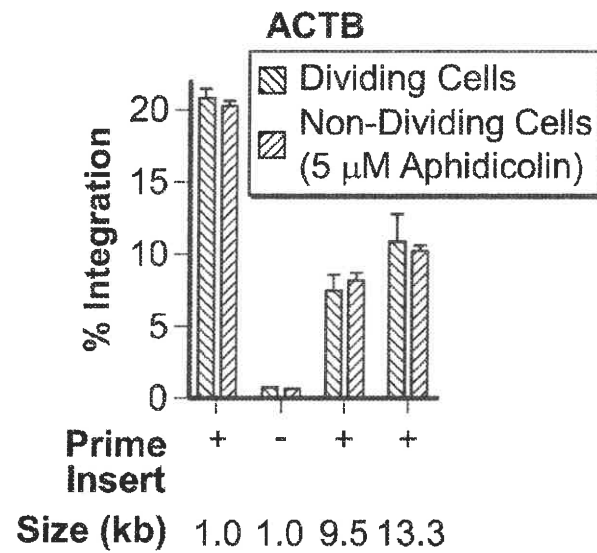


FIG. 42C

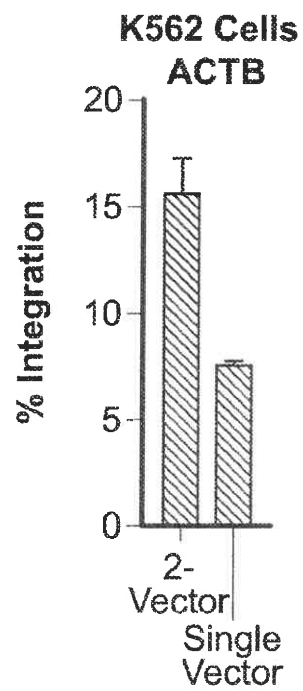


FIG. 42D

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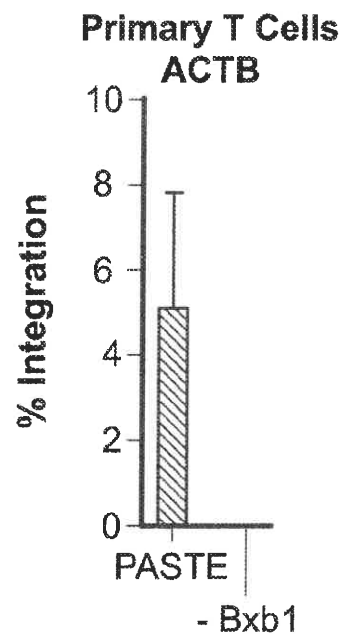


FIG. 42E

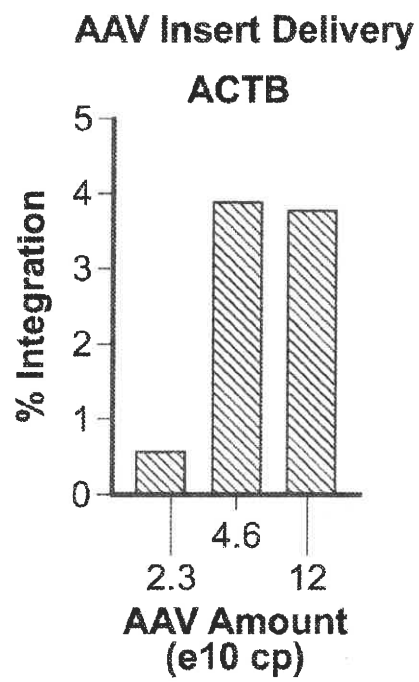


FIG. 42F

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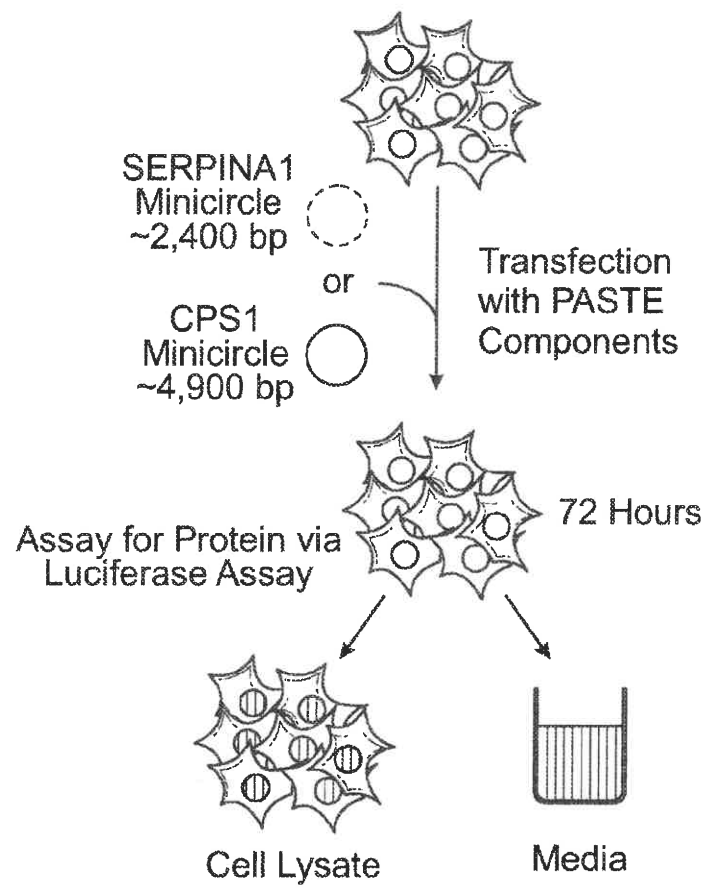


FIG. 42G

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HEK293FT Cells

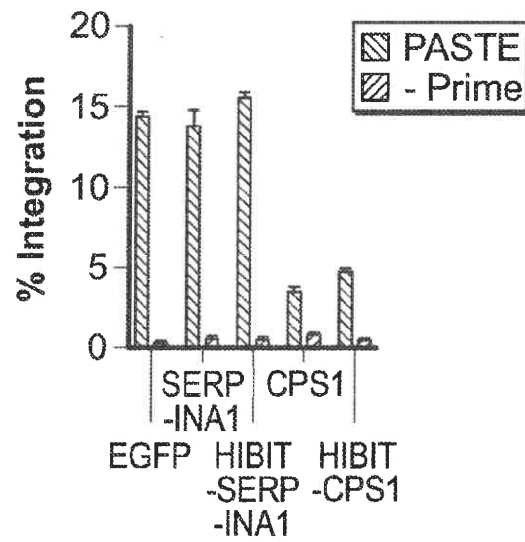


FIG. 42H

HEPG2

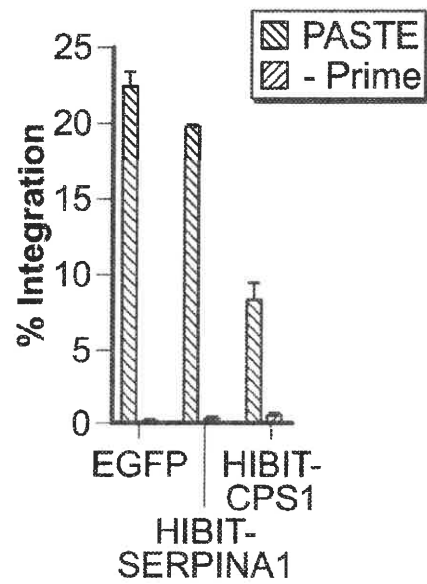


FIG. 42I

HEPG2 Cellular Protein

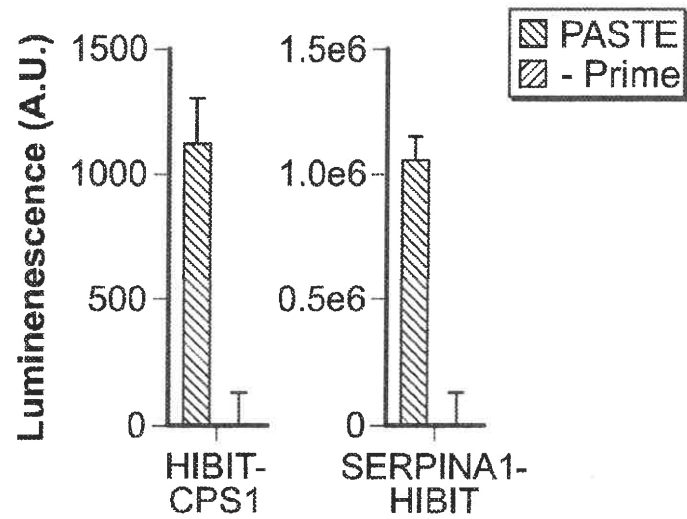


FIG. 42J

HEPG2 Secreted Protein

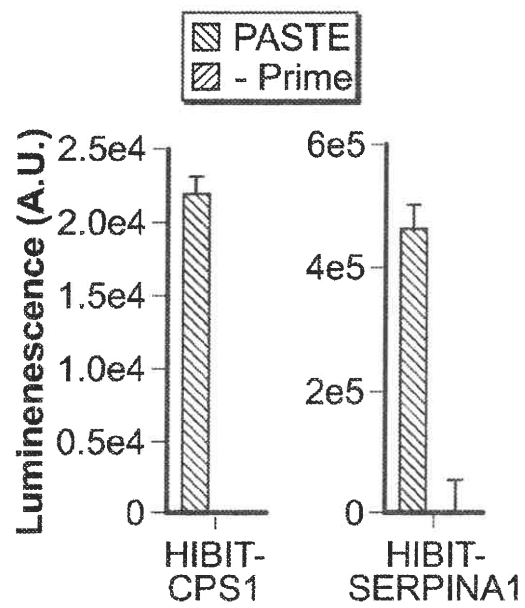
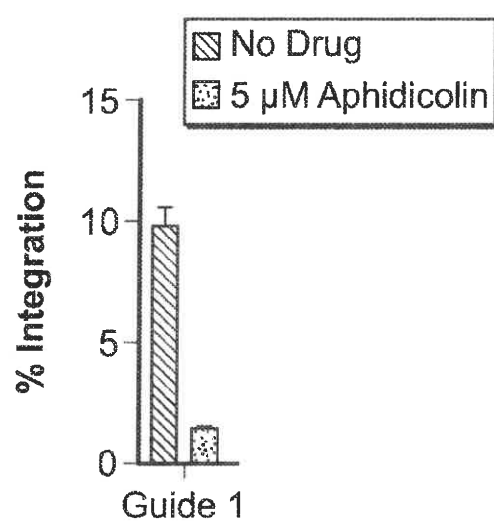


FIG. 42K

EMX1 Targeting by Cas9**FIG. 43A**

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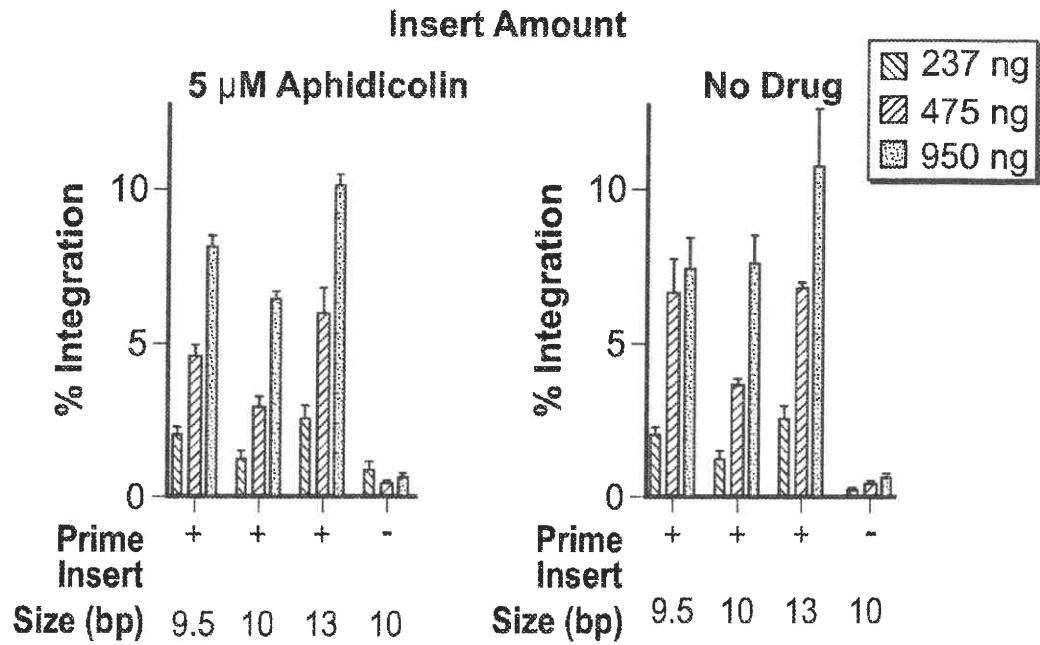


FIG. 43B

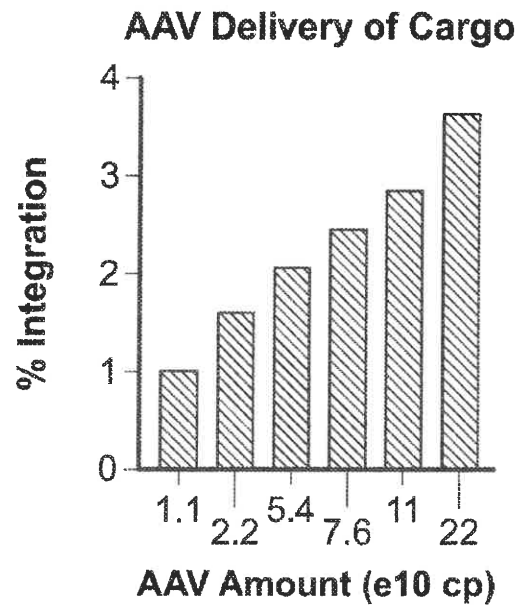


FIG. 43C

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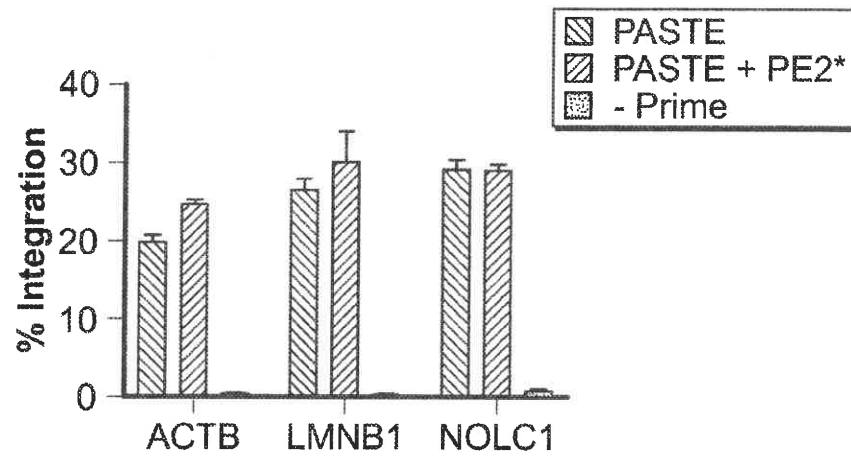


FIG. 44A

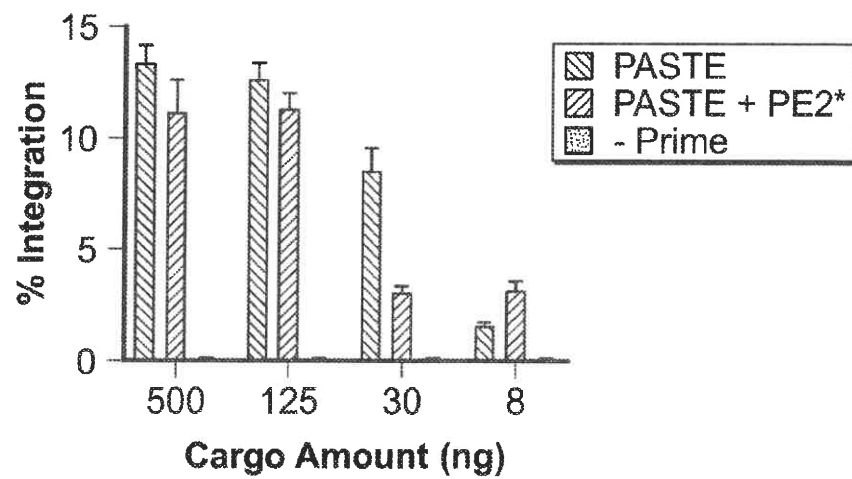


FIG. 44B

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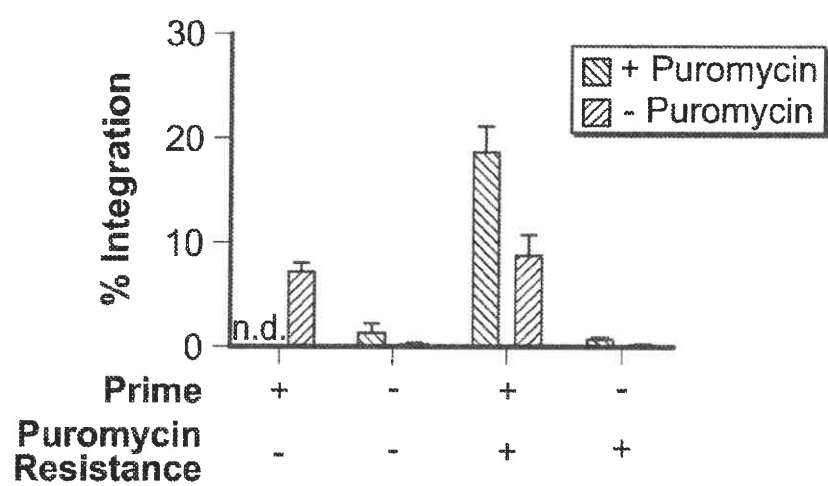


FIG. 45

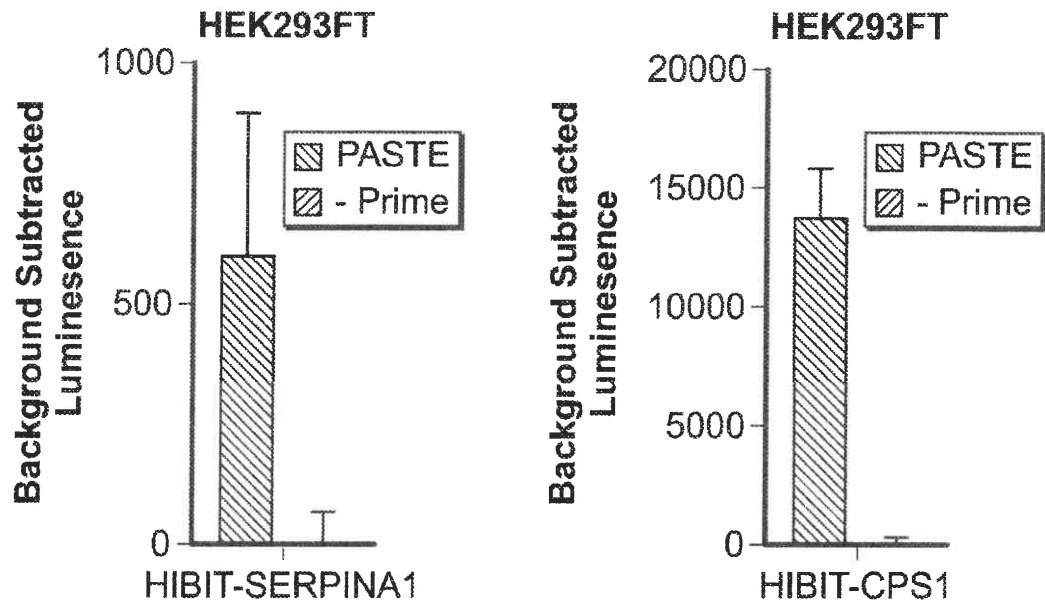


FIG. 46A

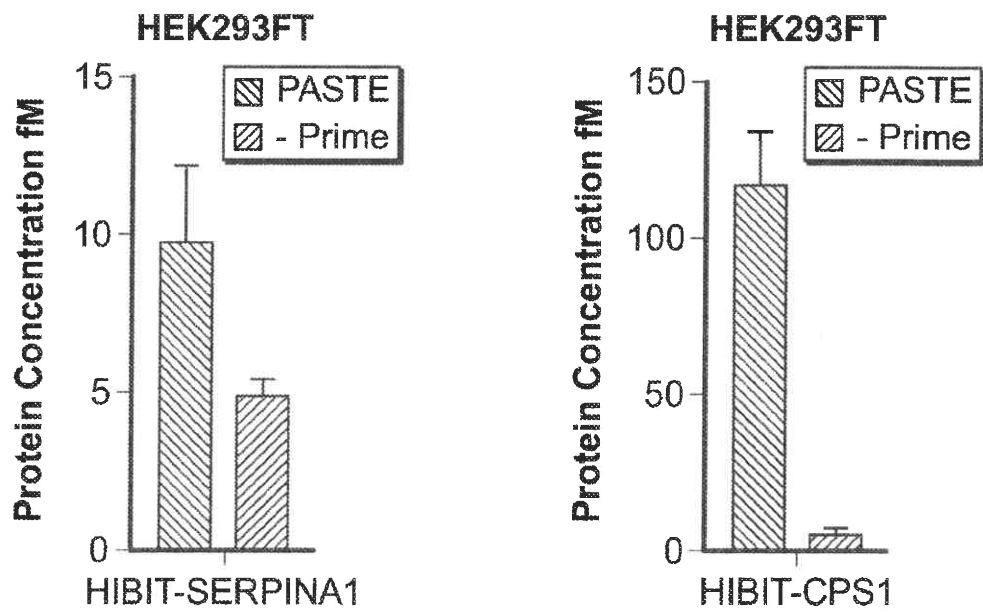


FIG. 46B

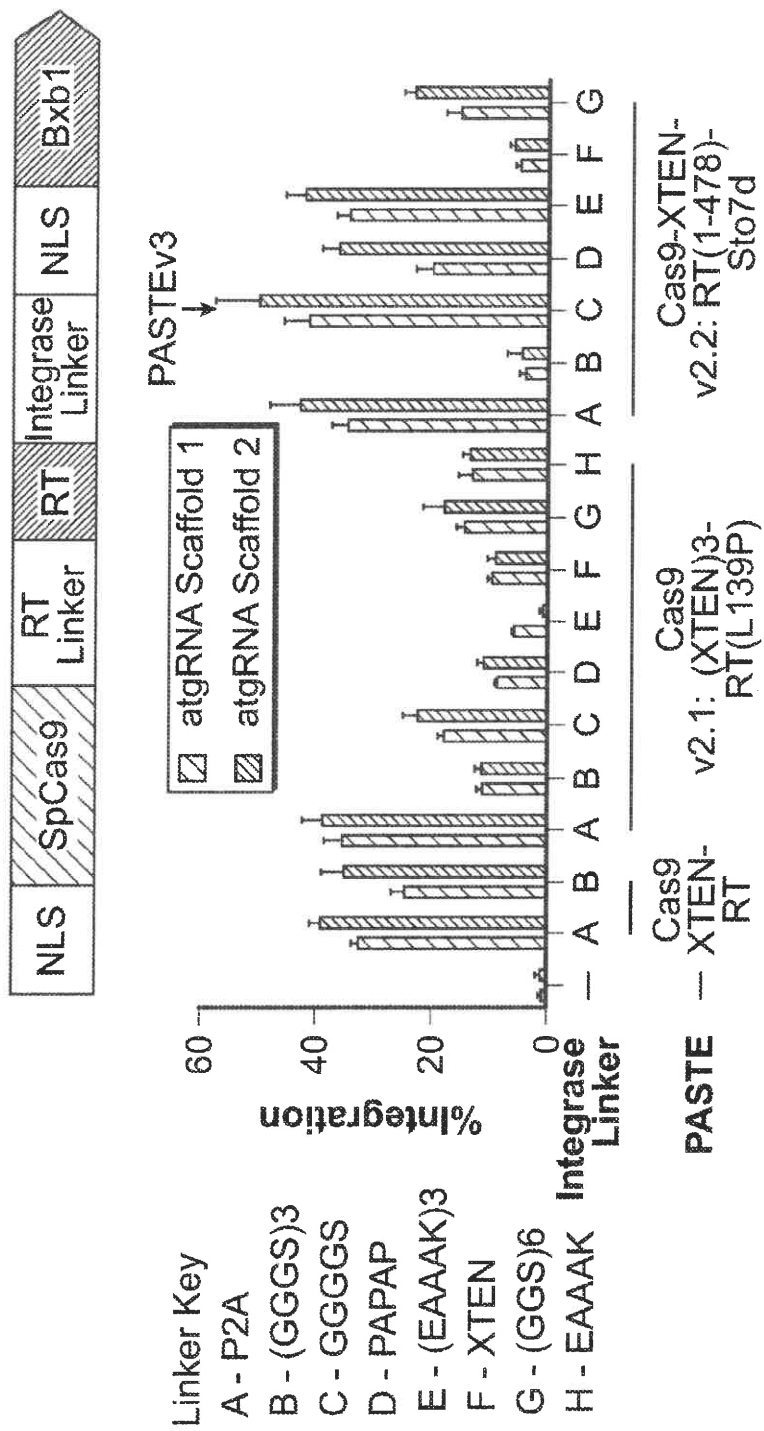
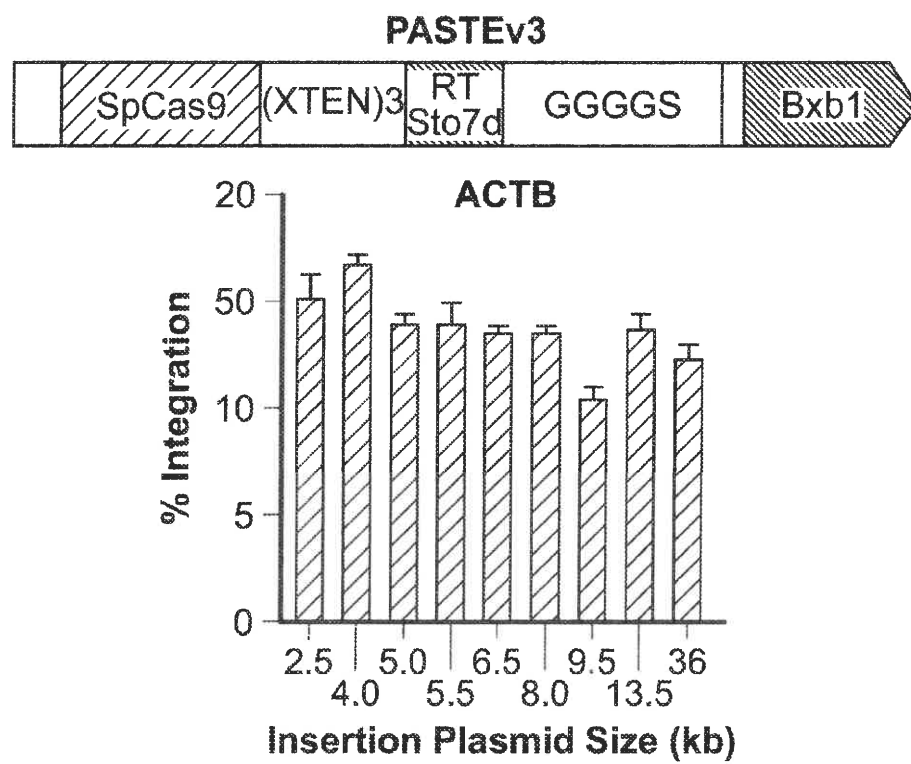


FIG. 47A



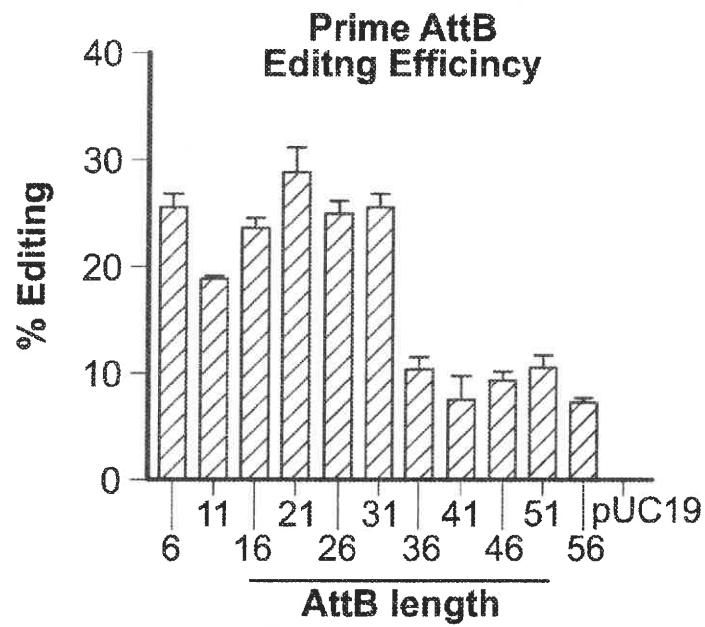


FIG. 48A

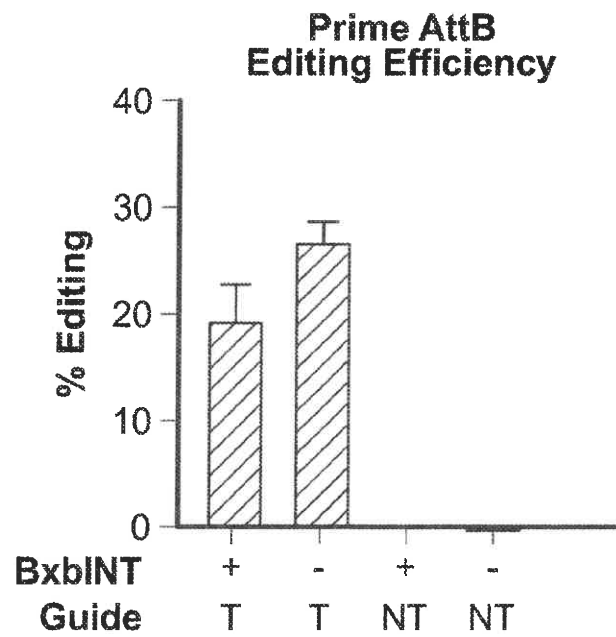


FIG. 48B

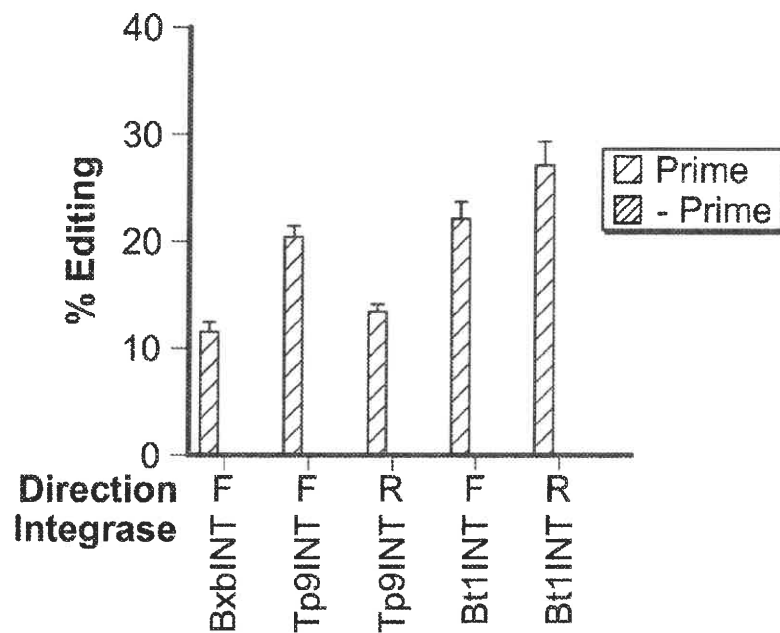


FIG. 48C

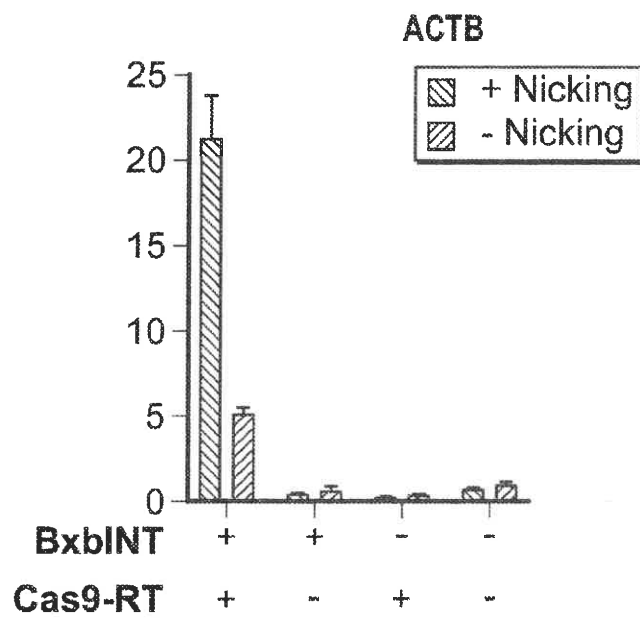


FIG. 48D

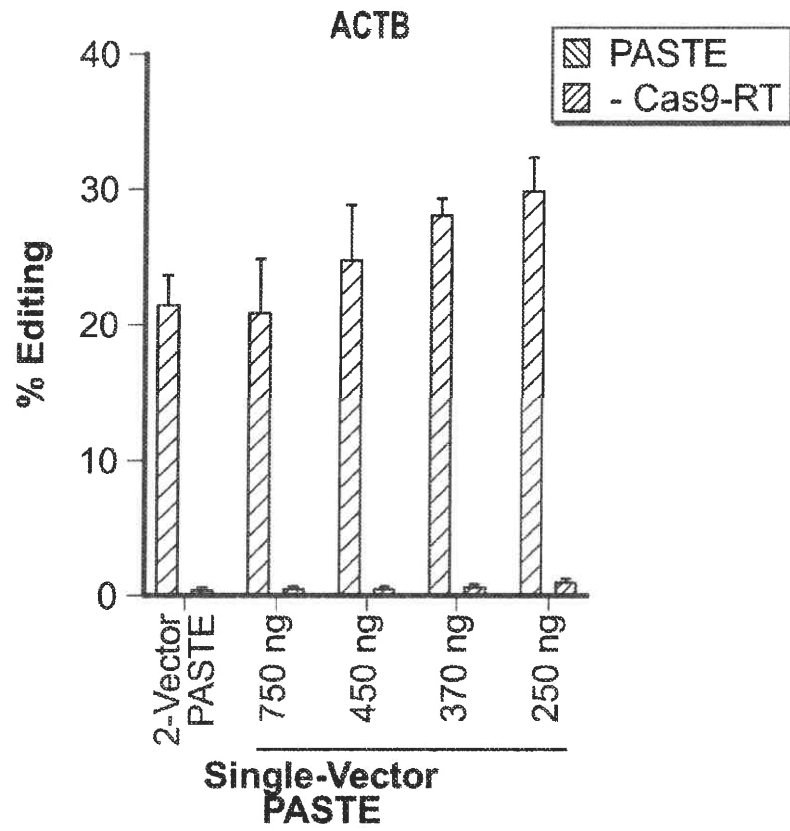


FIG. 49A

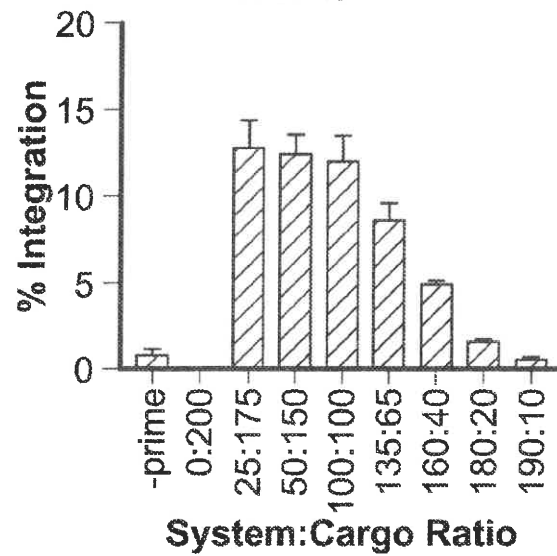


FIG. 49B

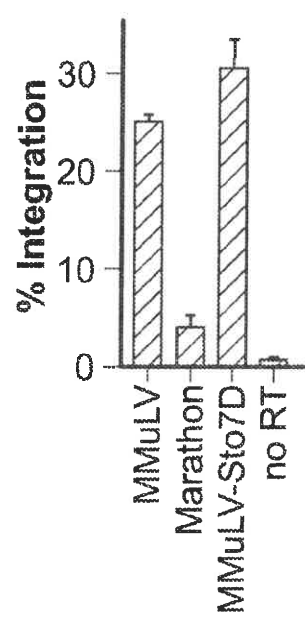


FIG. 49C

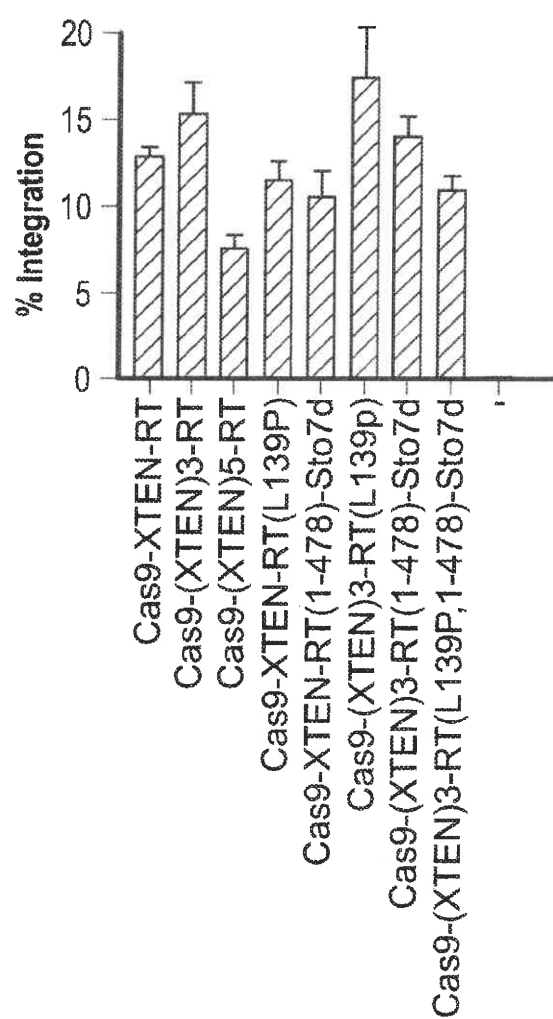


FIG. 49D

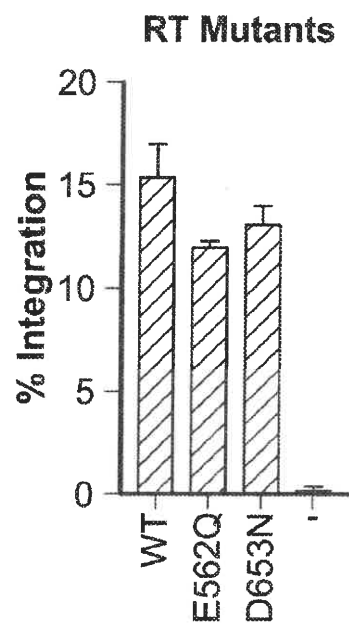


FIG. 49E

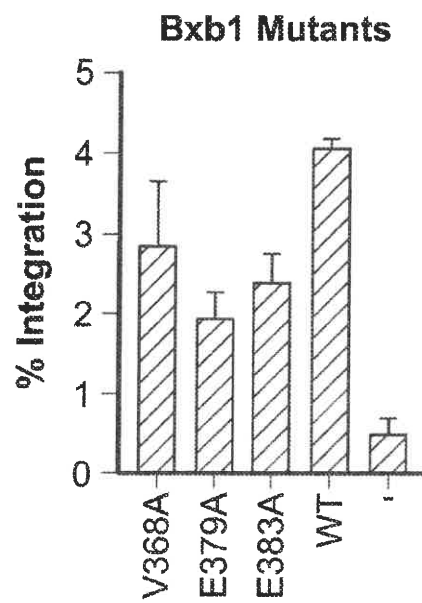


FIG. 49F

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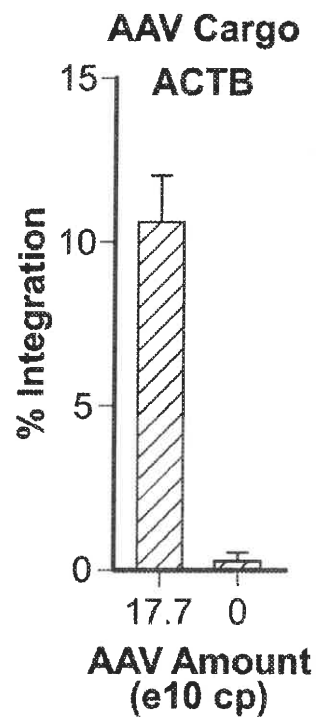


FIG. 50A

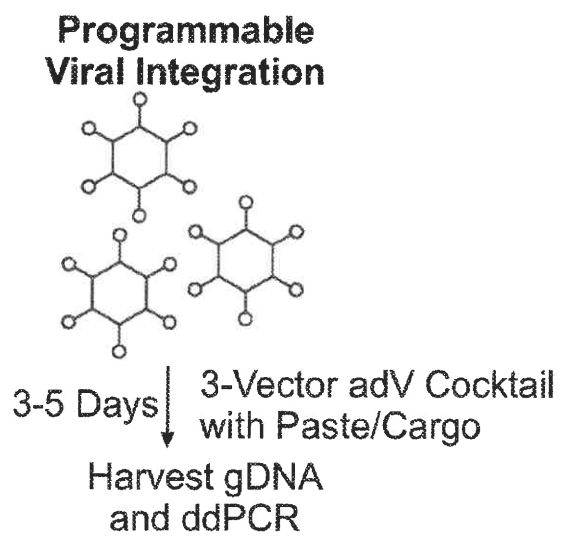


FIG. 50B

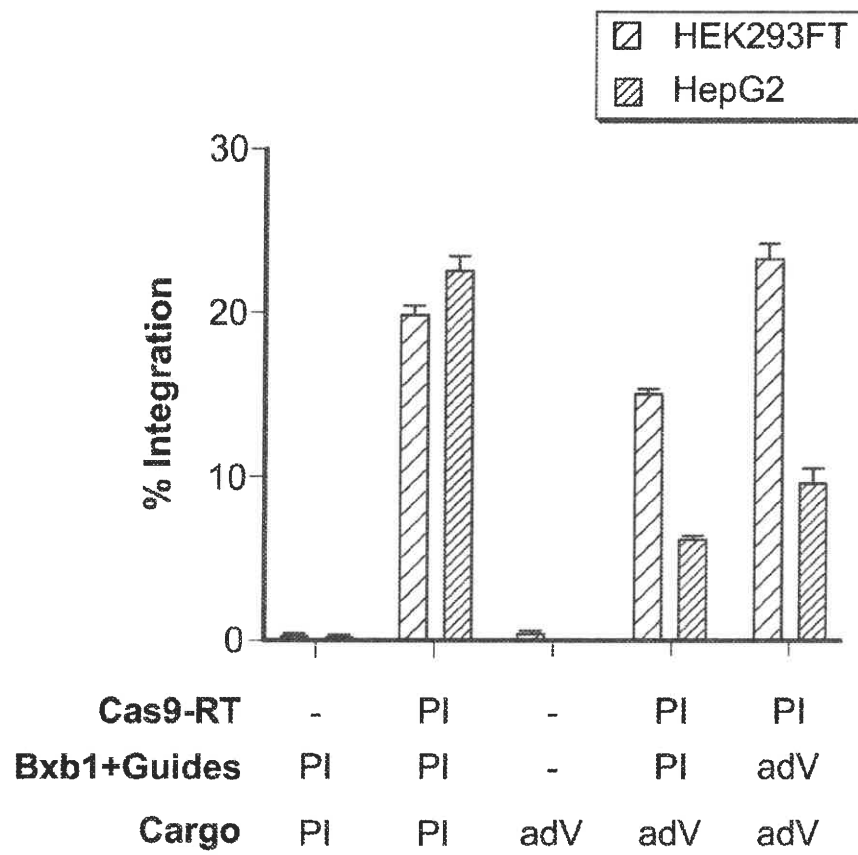
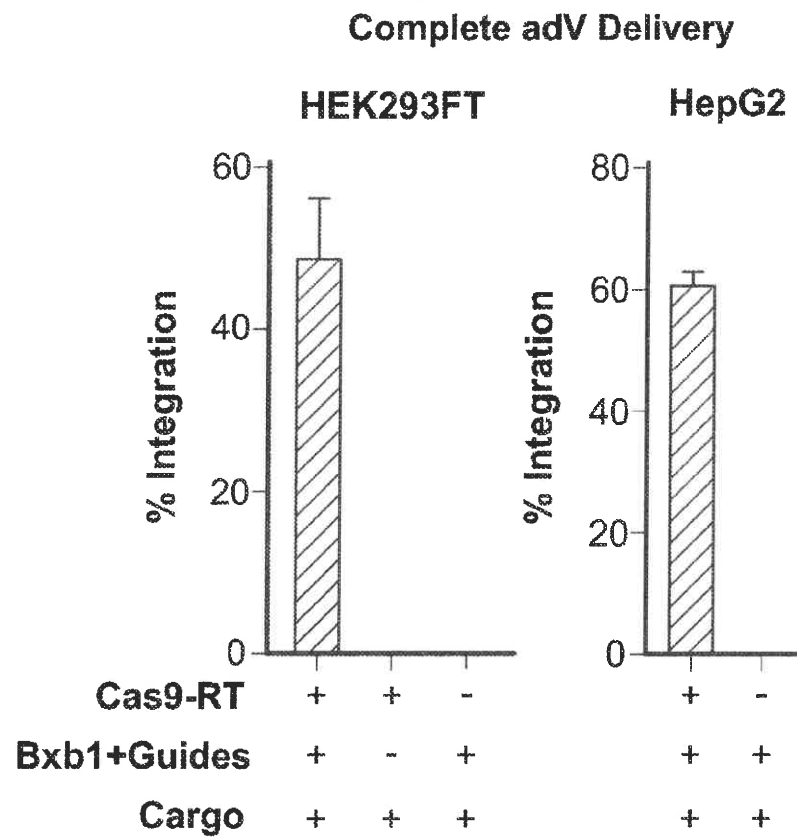


FIG. 50C



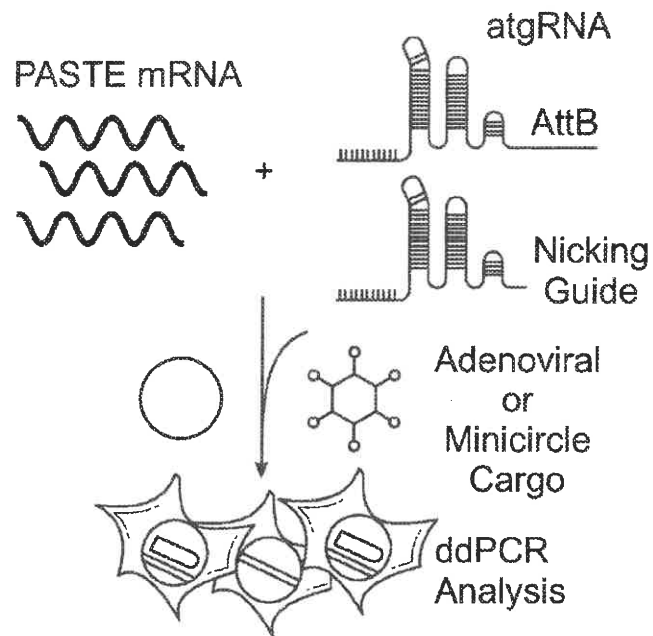


FIG. 50E

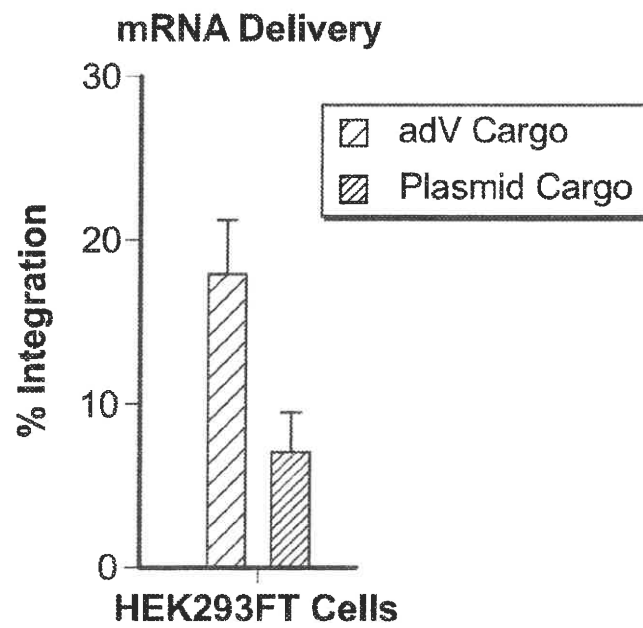


FIG. 50F

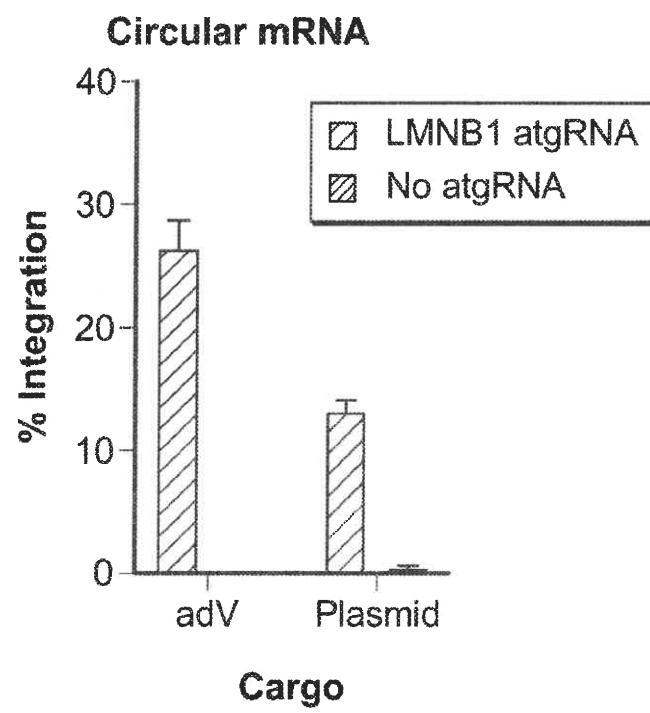


FIG. 50G

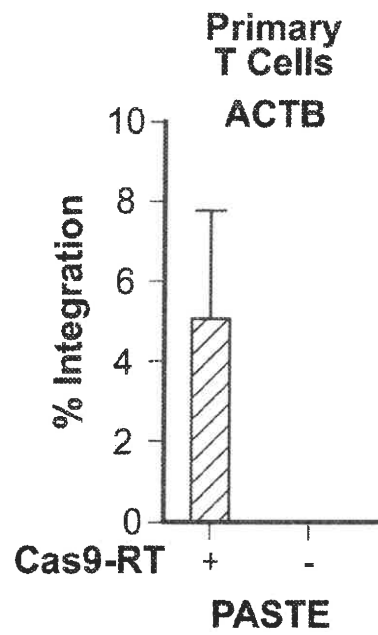


FIG. 50H

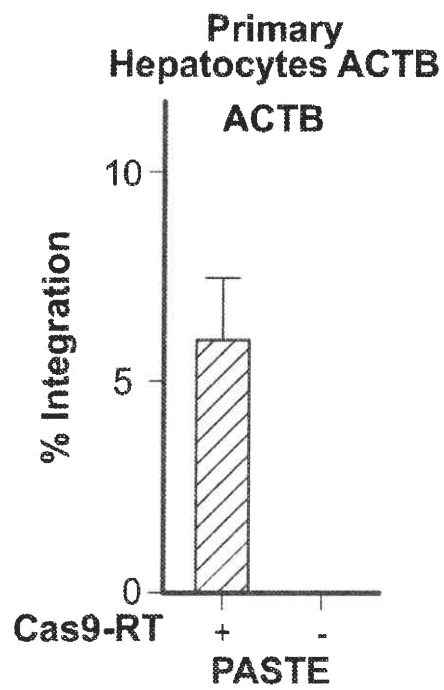


FIG. 50I

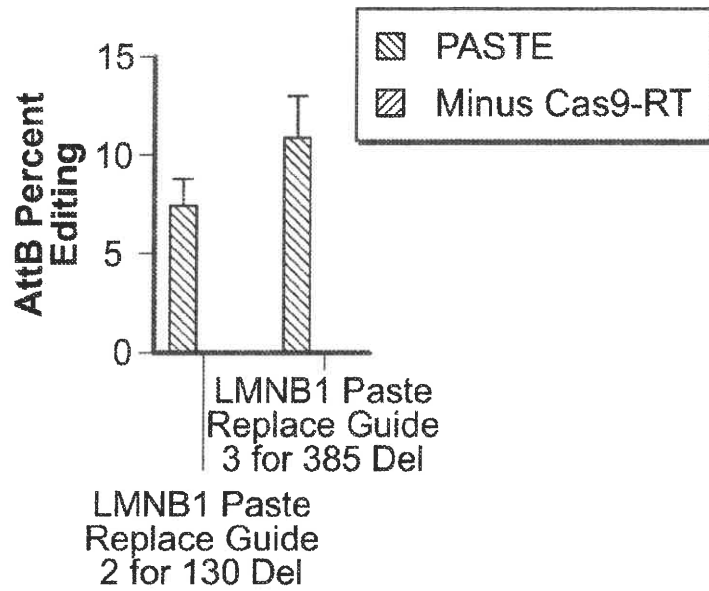


FIG. 51A

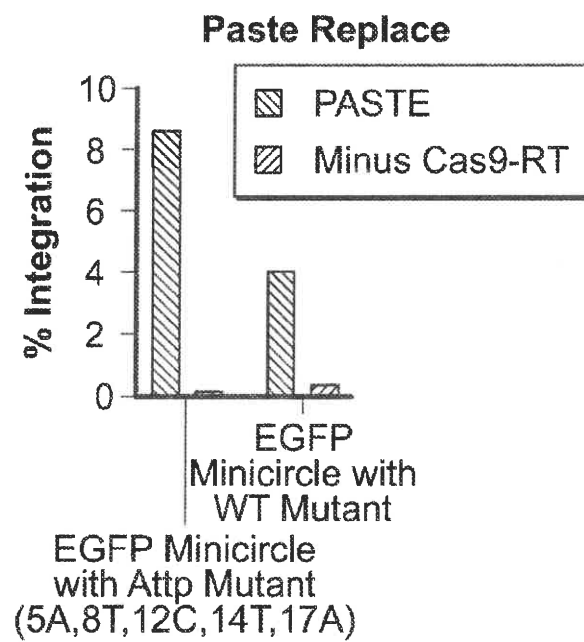


FIG. 51B