

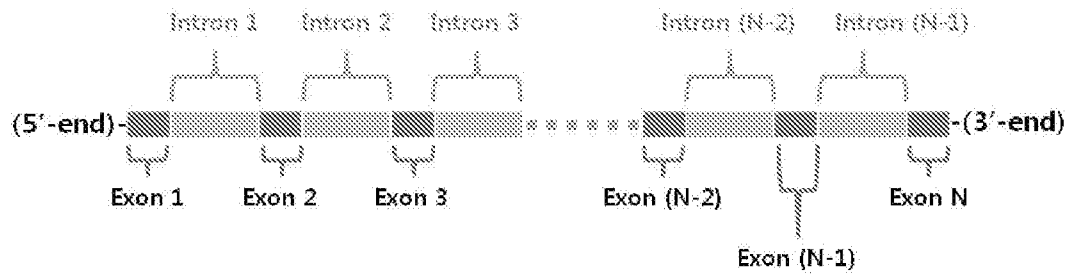
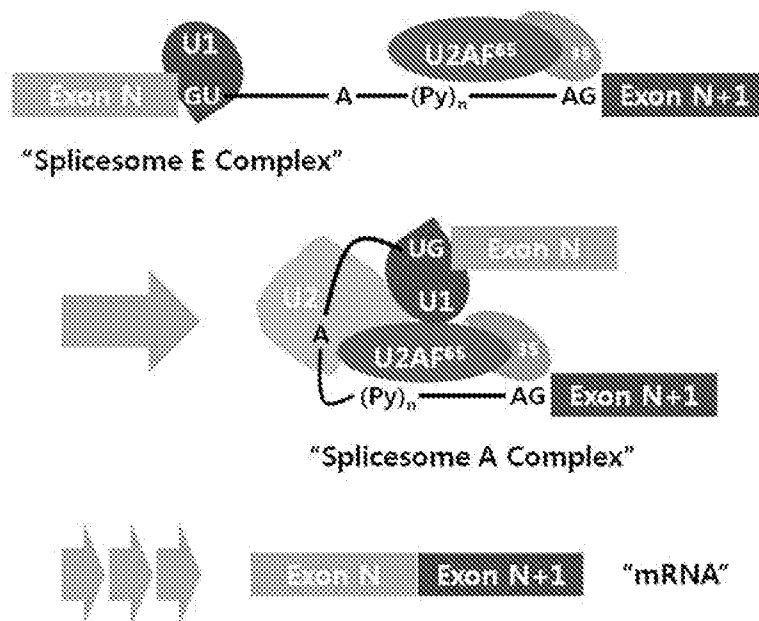
Figure 1A**Figure 1B**

Figure 2A

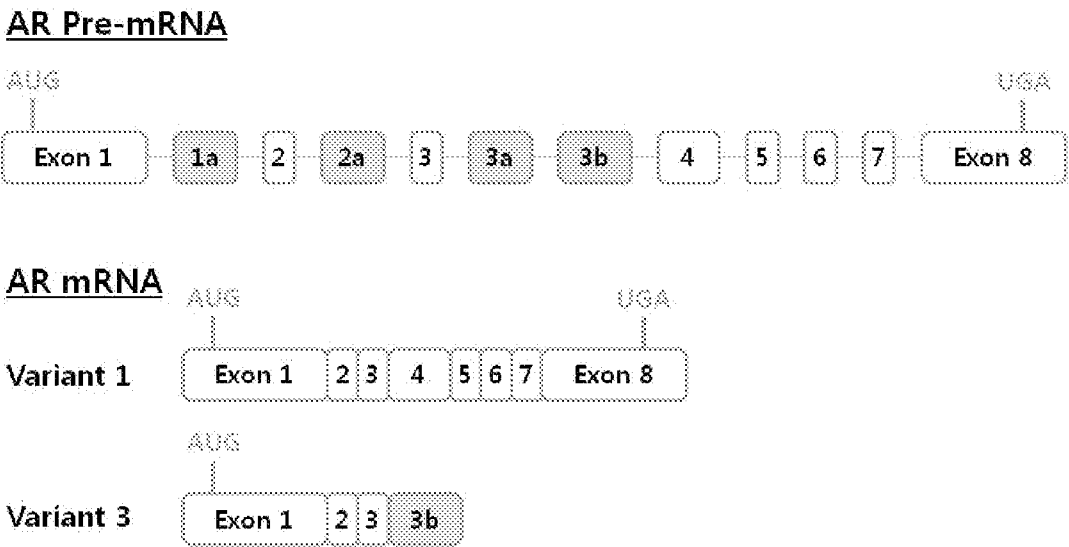


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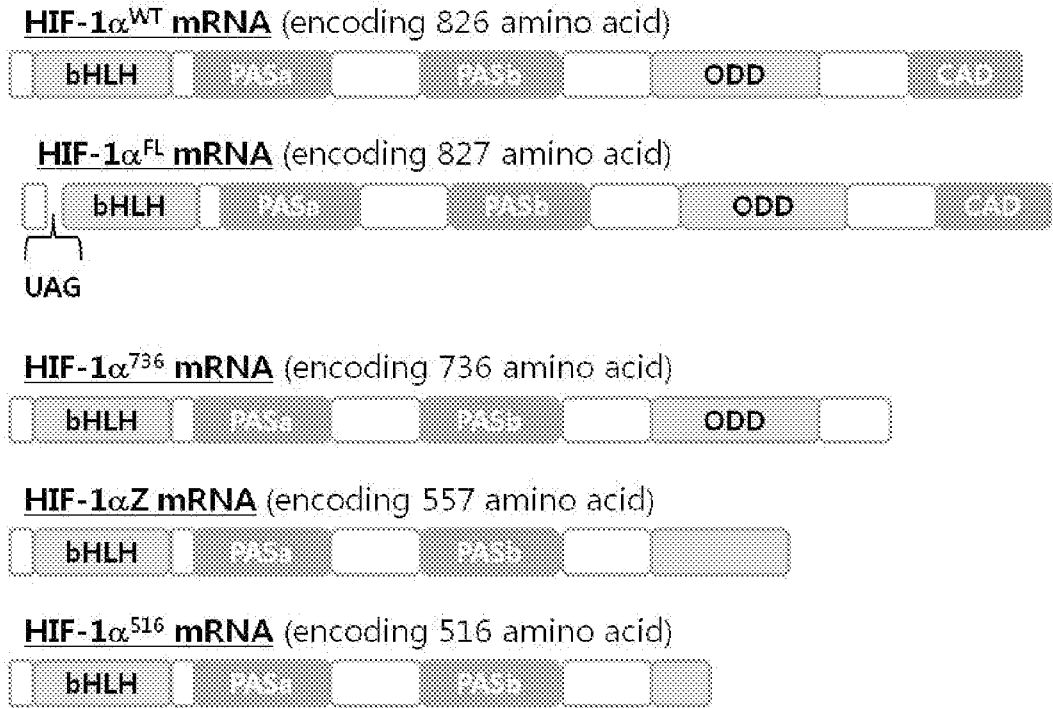


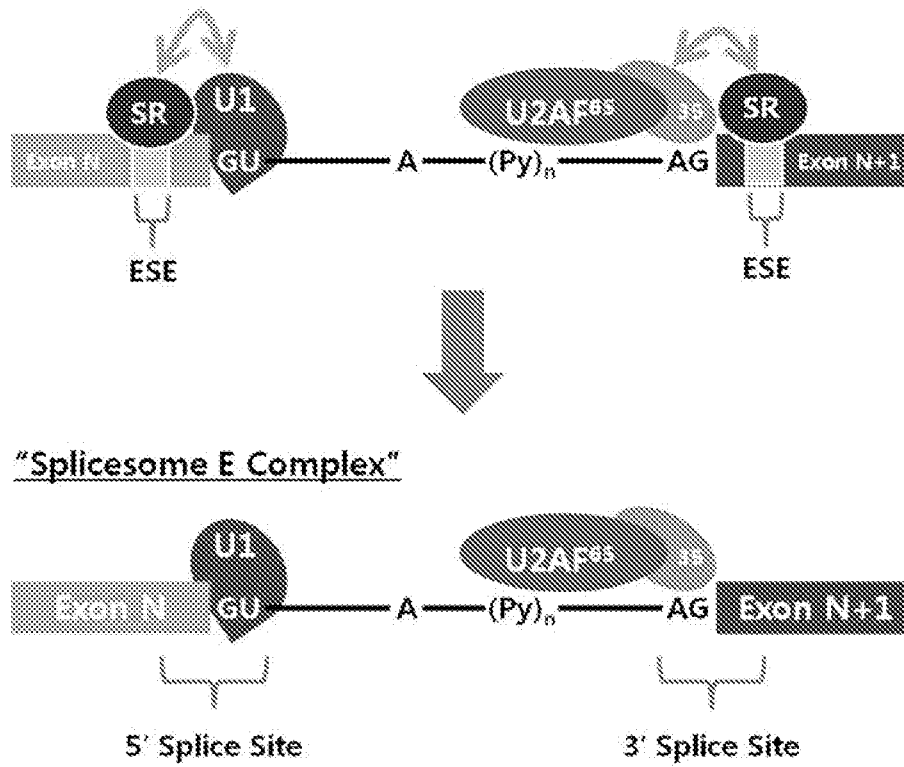
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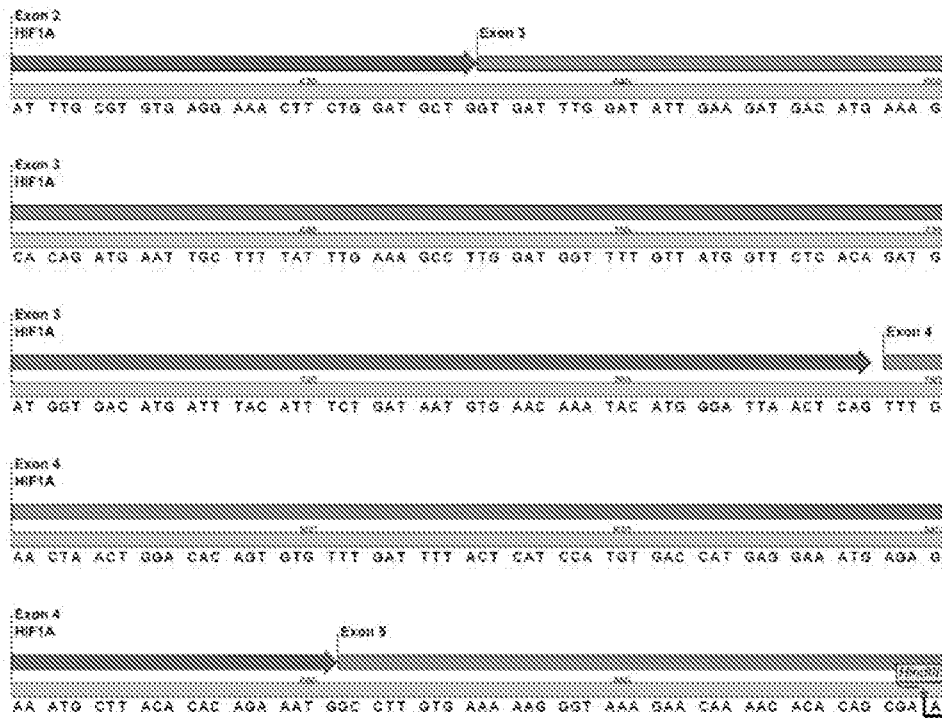
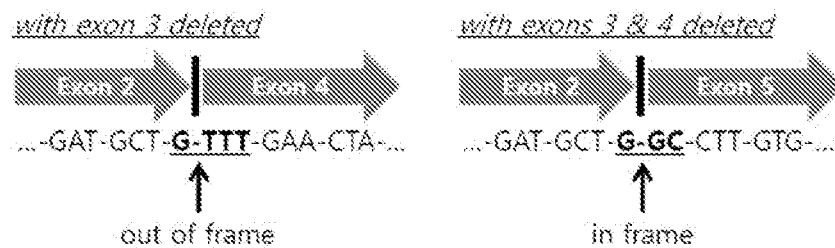
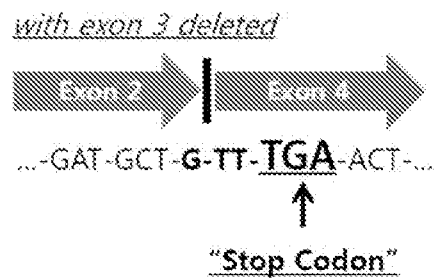
Figure 4A**Figure 4B****Figure 4C**

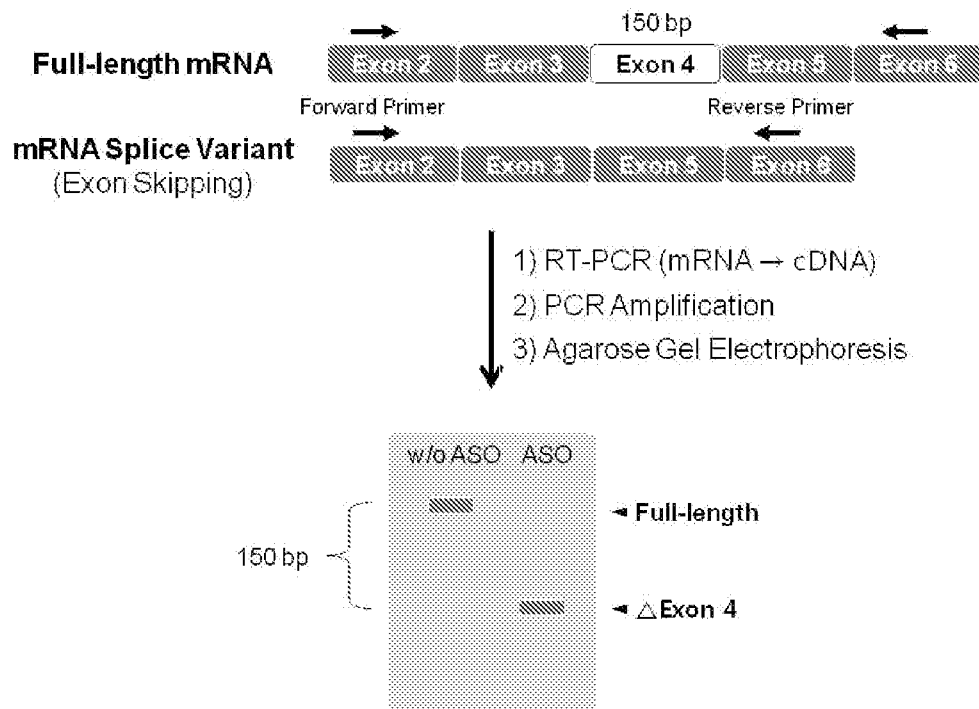
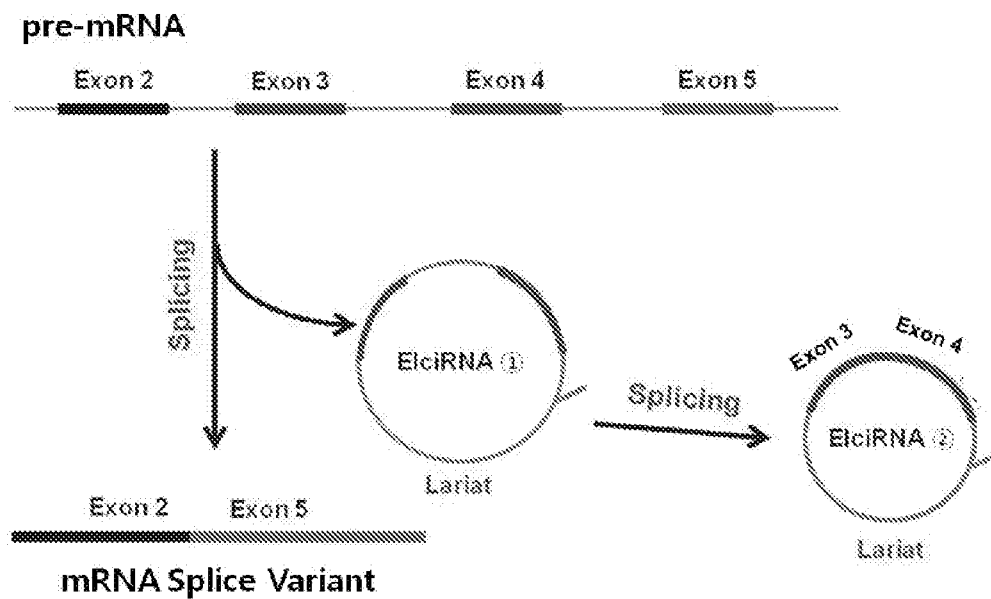
Figure 5A**Figure 5B**

Figure 6A

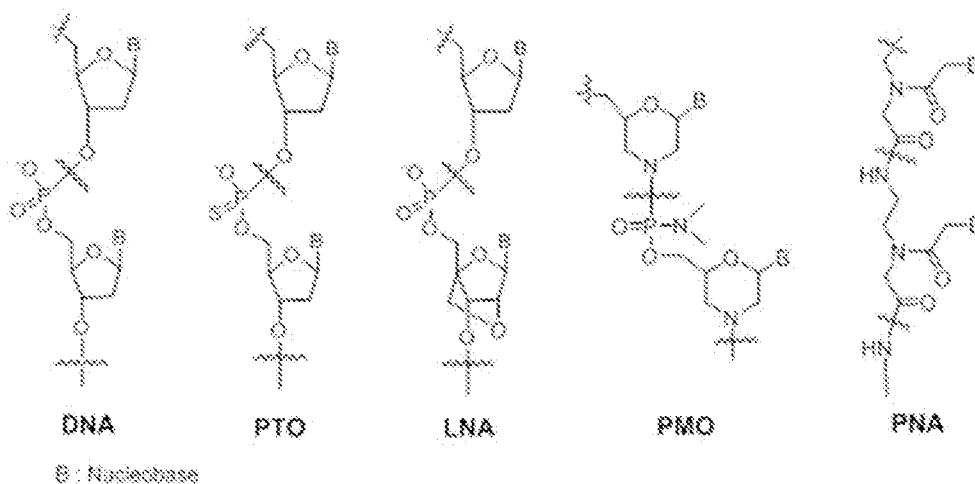


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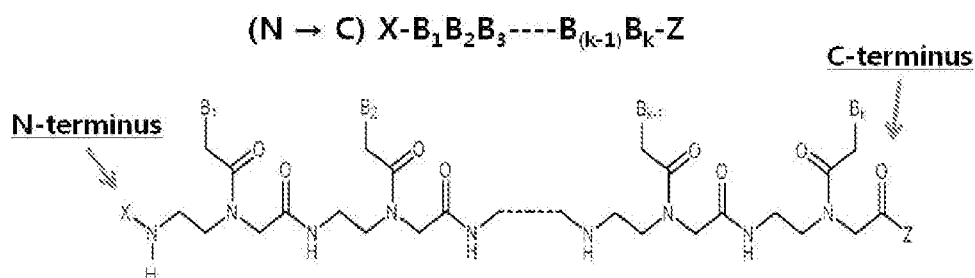


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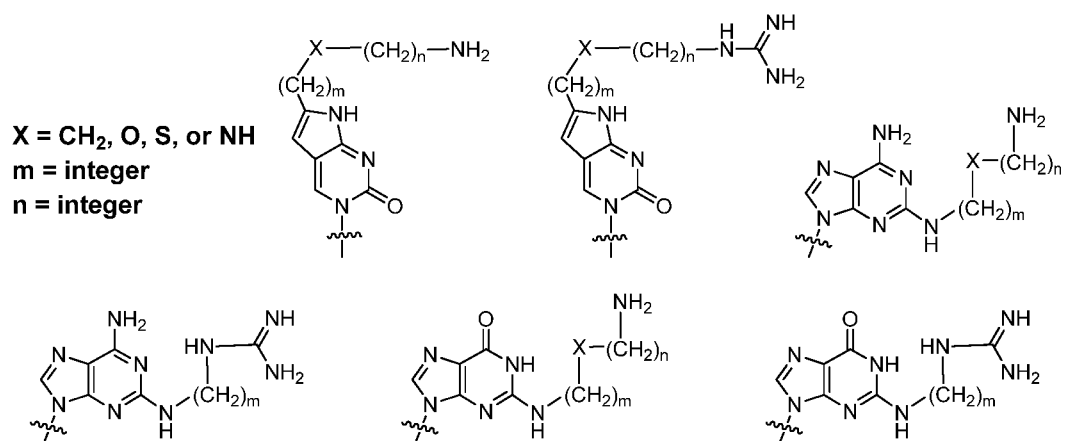
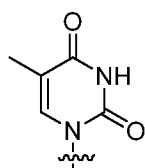
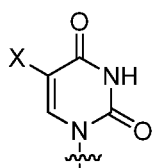
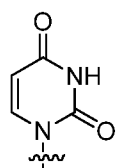


Figure 7

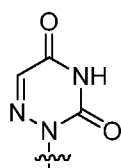
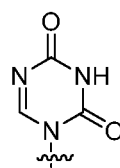
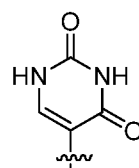
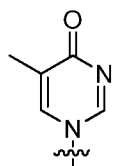
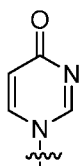
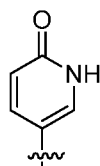
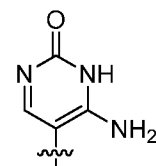
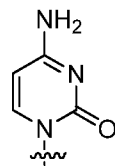
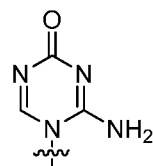
Thymine



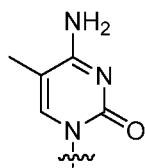
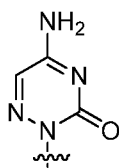
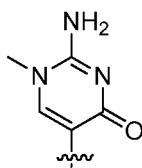
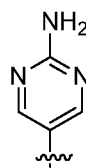
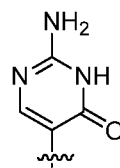
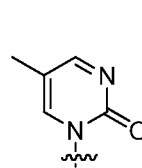
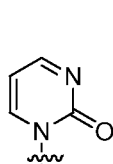
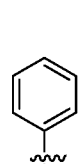
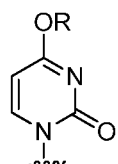
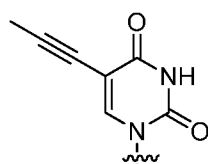
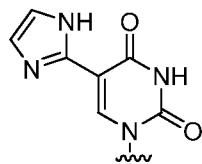
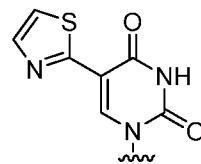
X = F, Cl, Br, or I



Uracil



Cytosine



R = alkyl

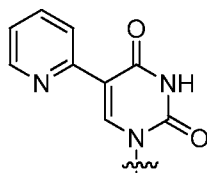
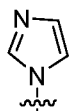
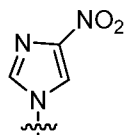
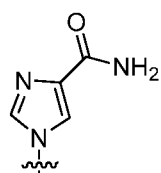
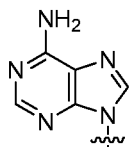
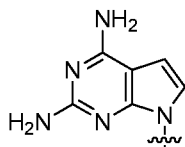
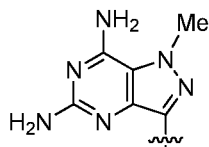
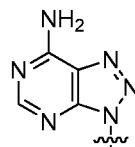
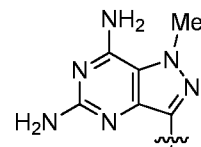
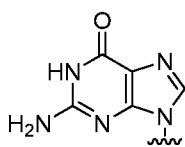


Figure 7

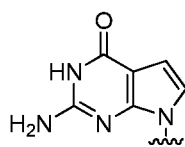
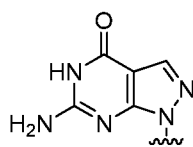
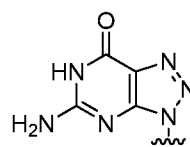
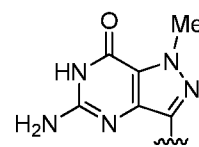
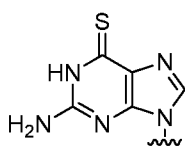
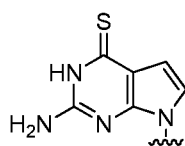
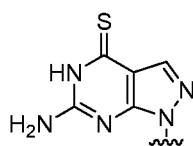
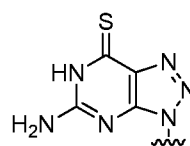
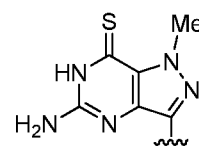
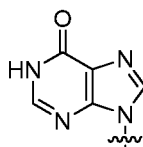
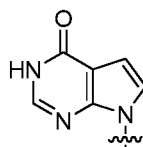
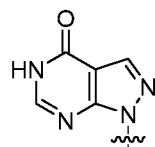
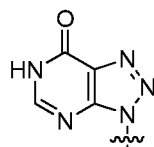
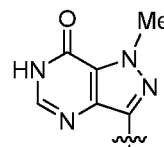
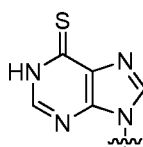
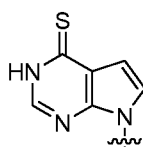
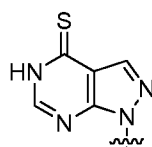
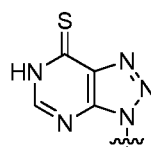
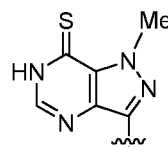
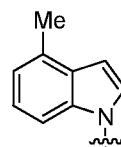
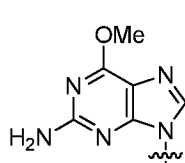
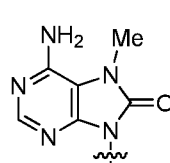
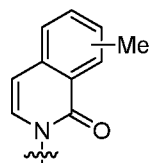
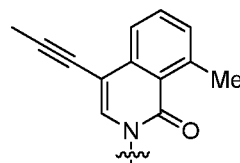
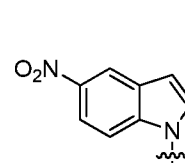
(continued from previous page)



Adenine



Guanine



6-Q-methylguanine

Figure 7

(continued from previous page)

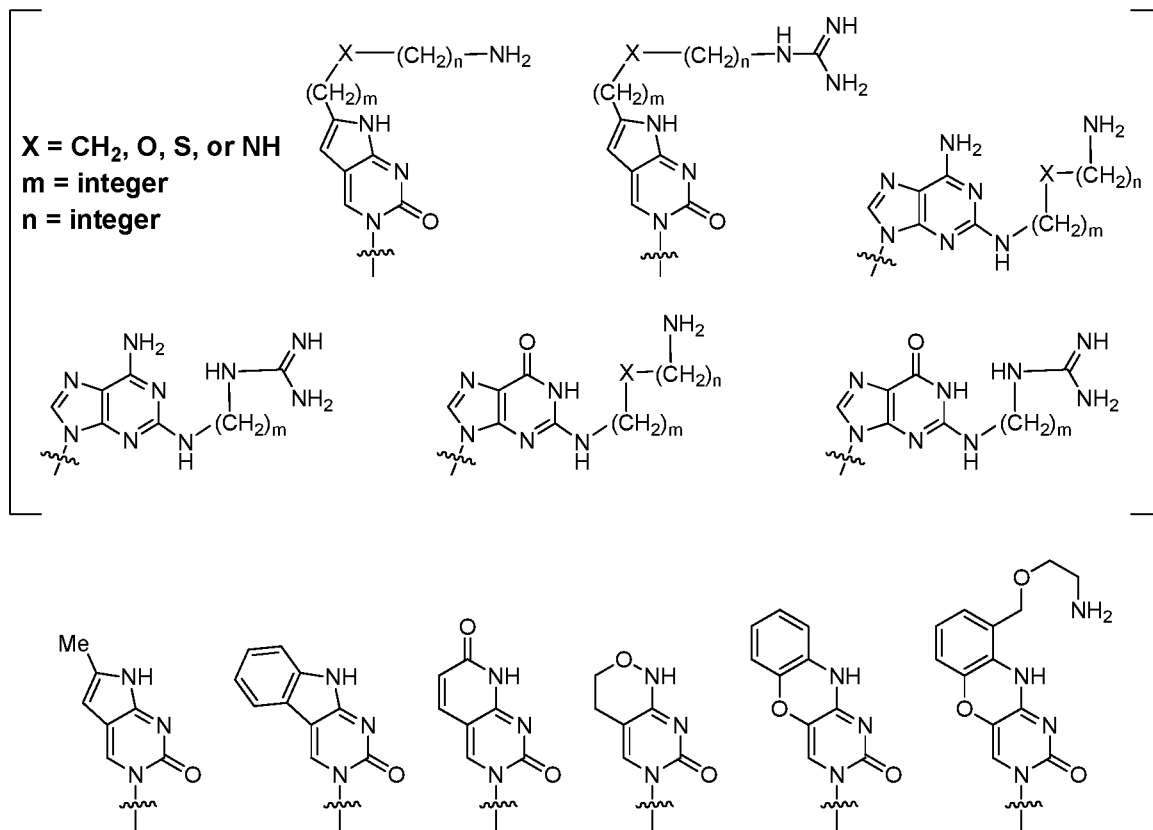


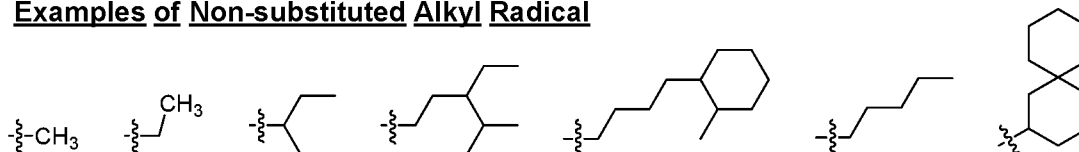
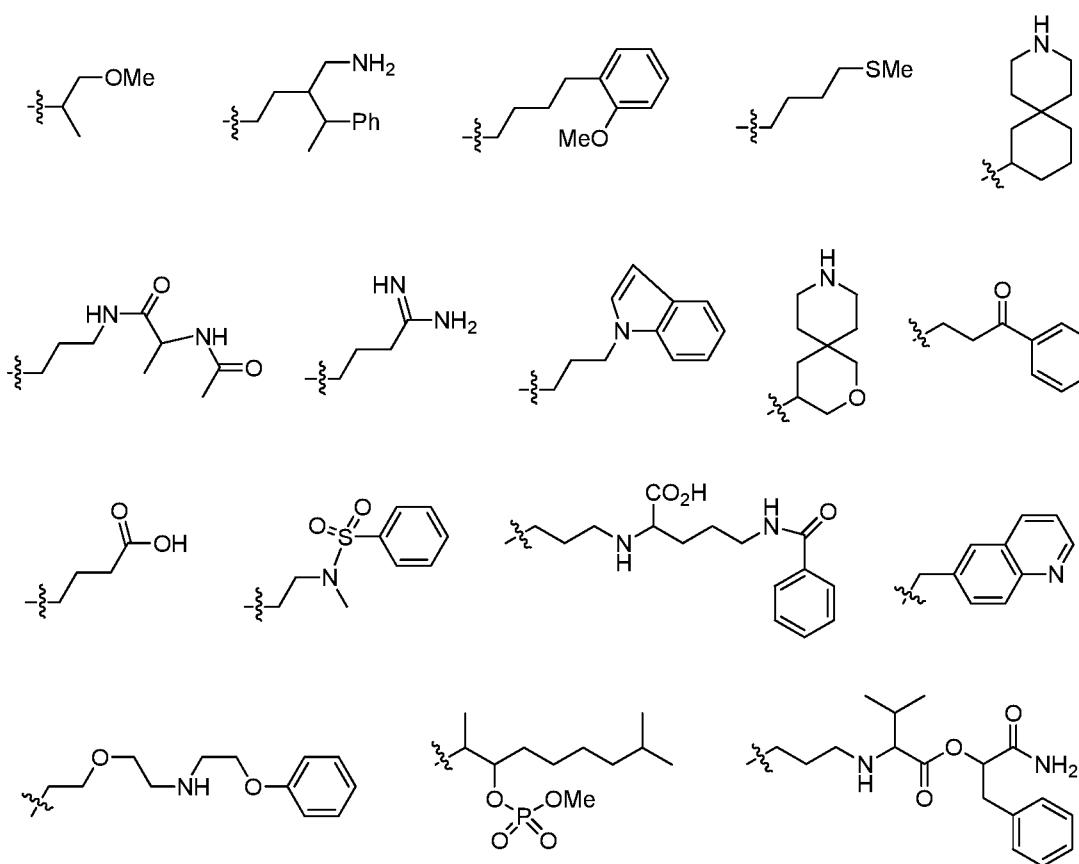
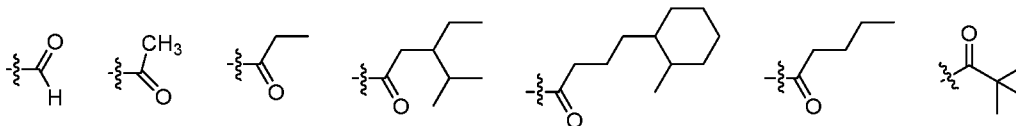
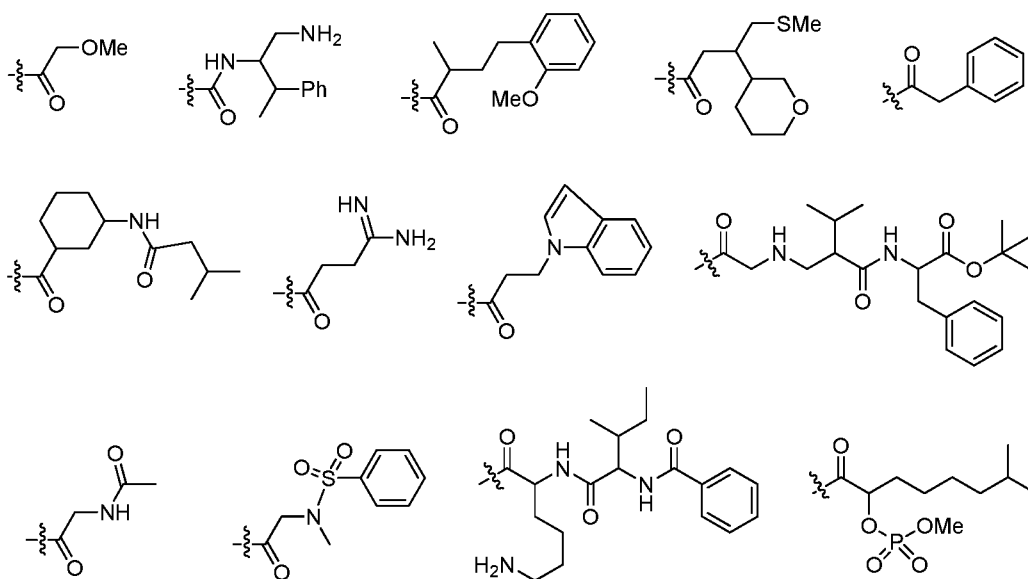
Figure 8A**Examples of Non-substituted Alkyl Radical****Examples of Substituted Alkyl Radical**

Figure 8B

Examples of Non-substituted Alkylacyl Radical



Examples of Substituted Alkylacyl Radical



Examples of Substituted or Non-substituted Arylacyl Radical

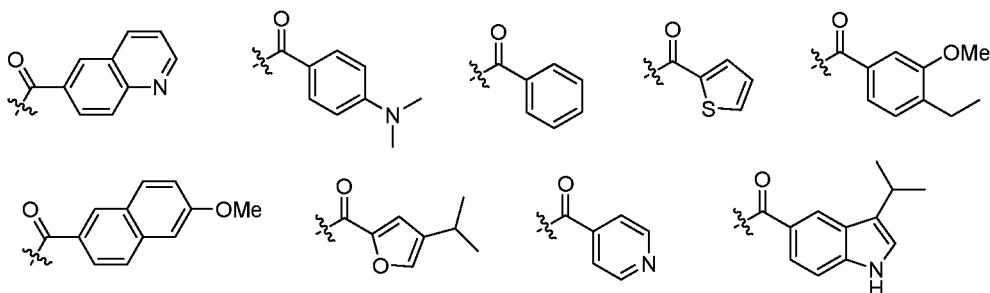


Figure 8C

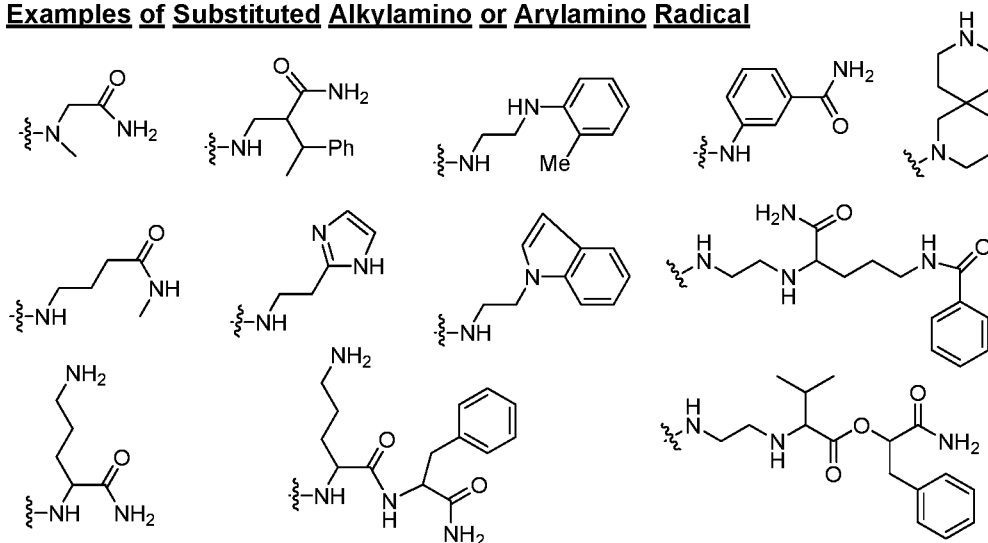
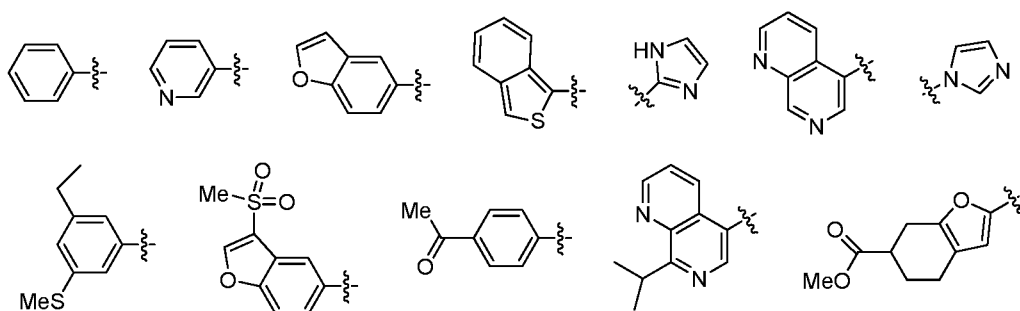
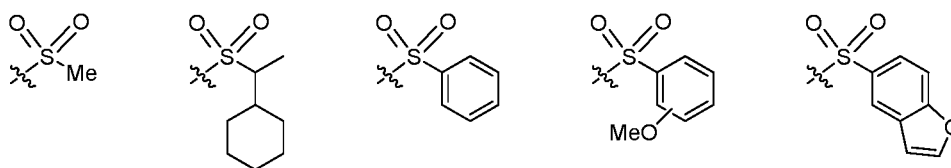
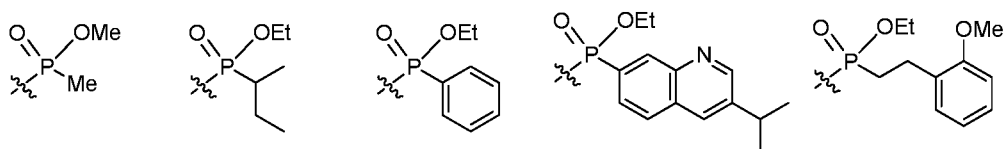
Examples of Substituted Alkylamino or Arylamino Radical**Examples of Substituted or Non-substituted Aryl Radical****Examples of Substituted or Non-substituted Alkylsulfonyl or Arylsulfonyl Radical****Examples of Substituted or Non-substituted Alkyl- or Aryl-phosphonyl Radical**

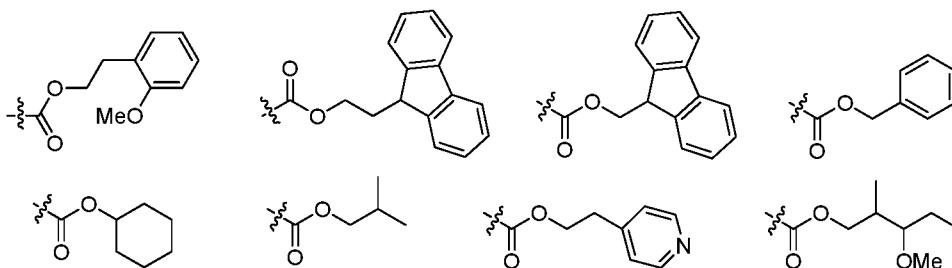
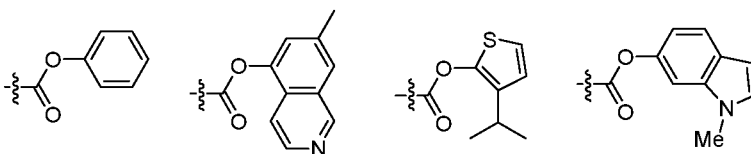
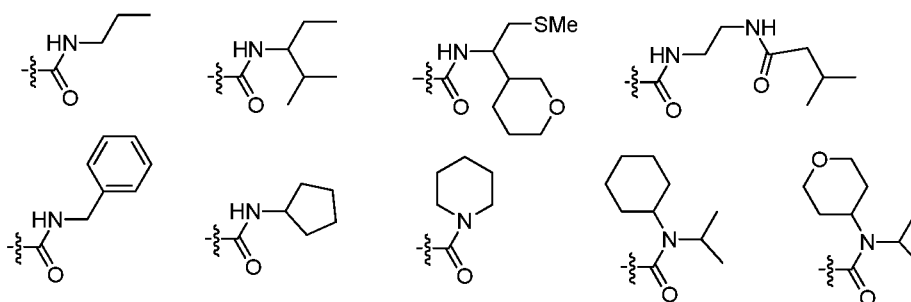
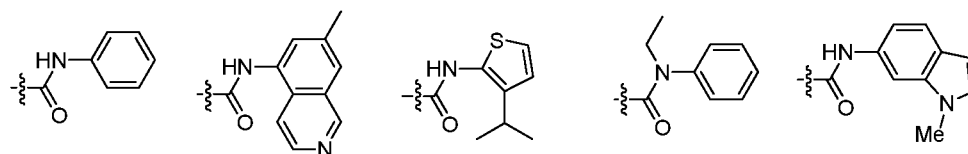
Figure 8D**Examples of Substituted or Non-substituted Alkyloxycarbonyl Radical****Examples of Substituted or Non-substituted Aryloxycarbonyl Radical****Examples of Substituted or Non-substituted Alkylaminocarbonyl Radical****Examples of Substituted or Non-substituted Arylaminocarbonyl Radical**

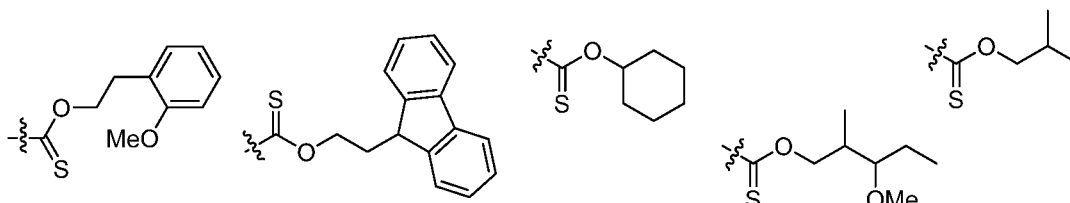
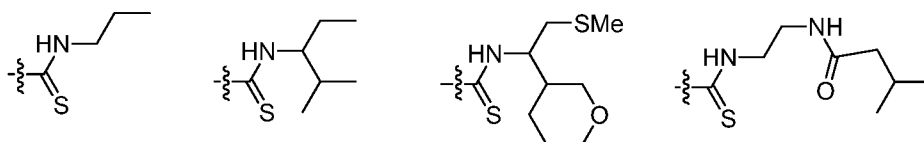
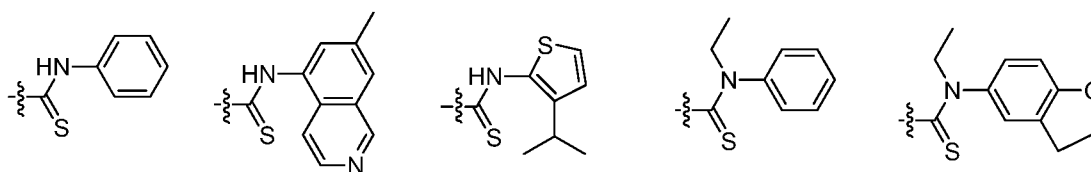
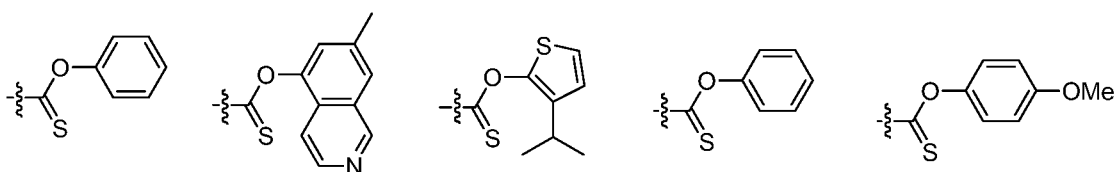
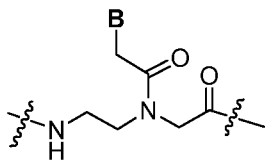
Figure 8E**Examples of Substituted or Non-substituted Alkyloxythiocarbonyl Radical****Examples of Substituted or Non-substituted Alkylaminothiocarbonyl Radical****Examples of Substituted or Non-substituted Arylaminothiocarbonyl Radical****Examples of Substituted or Non-substituted Aryloxythiocarbonyl Radical**

Figure 9

PNA Monomer**B** : Nucleobase

p : Integer

q : Integer

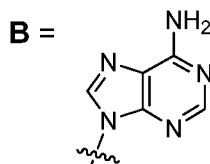
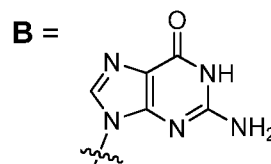
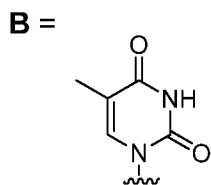
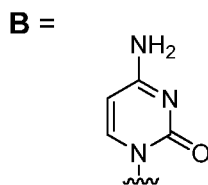
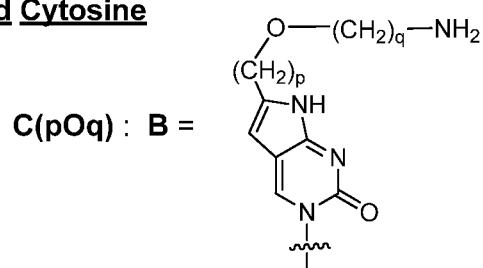
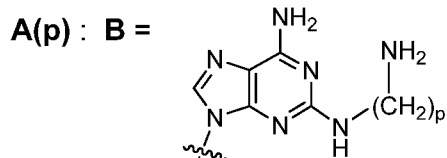
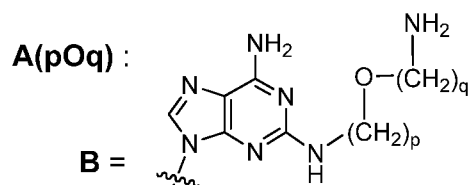
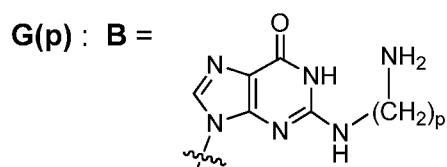
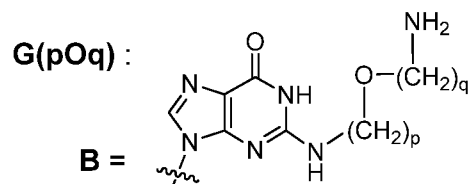
AdenineGuanineThymineCytosineModified CytosineModified AdenineModified Guanine

Figure 10

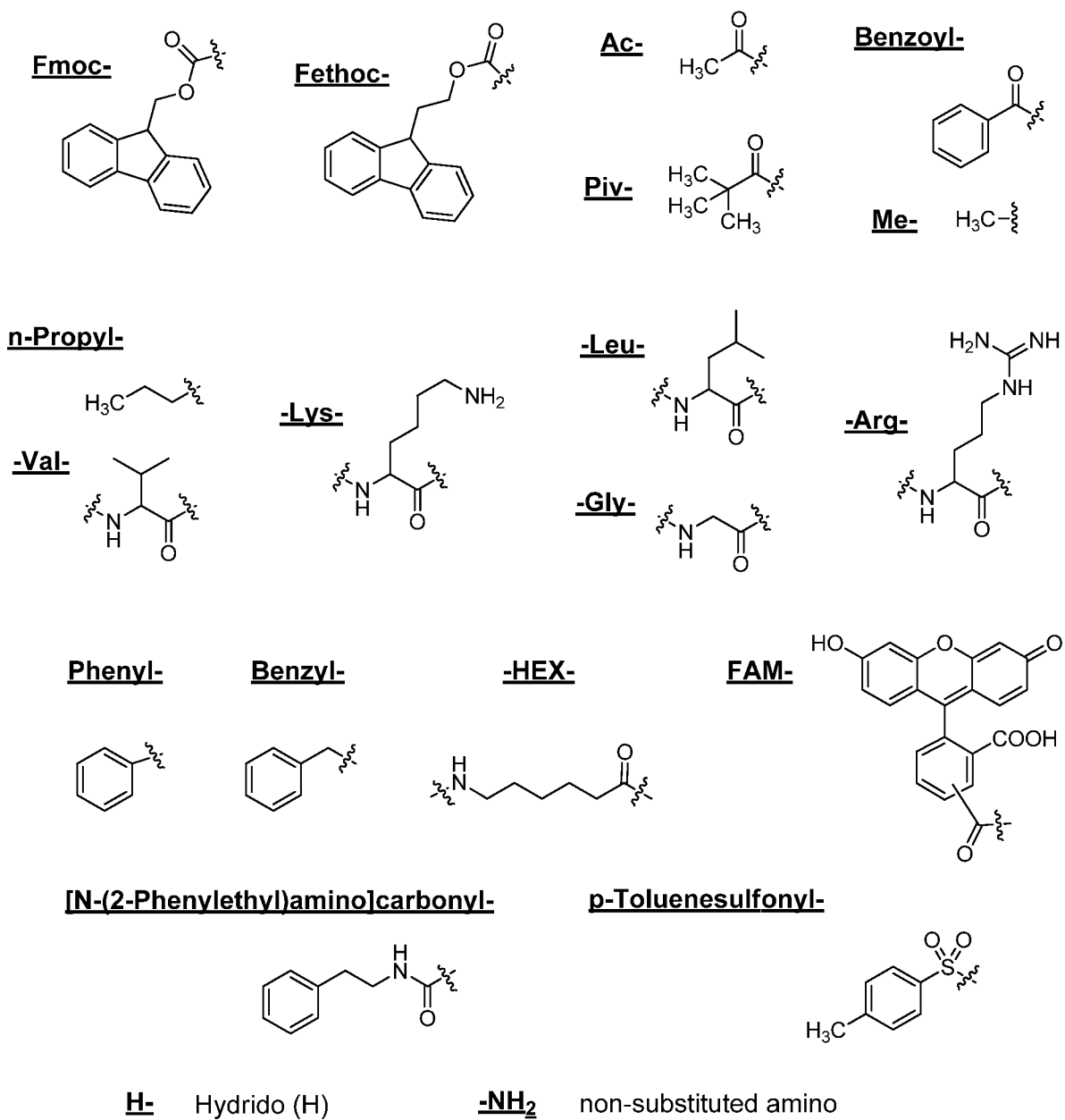


Figure 11

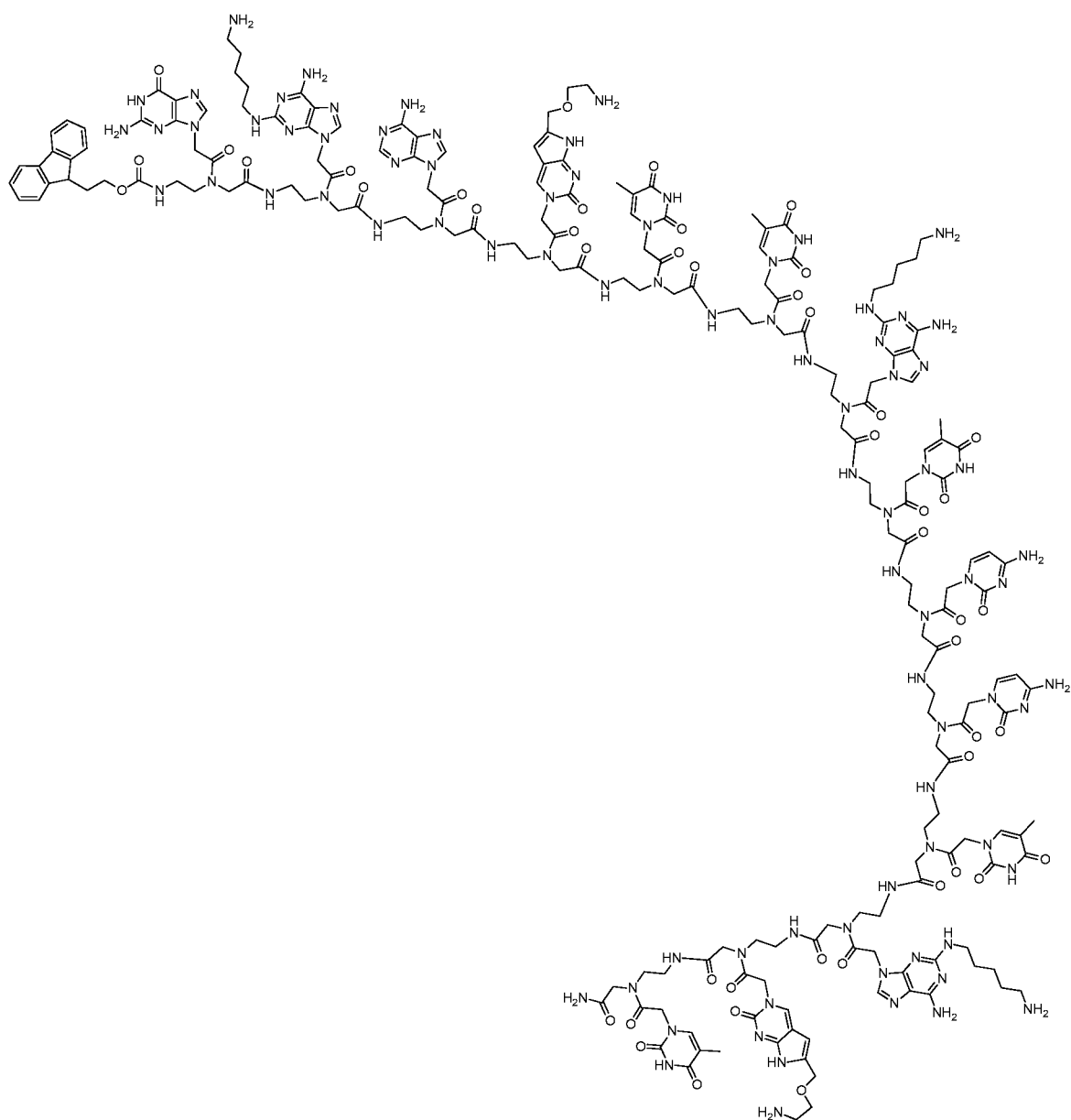


Figure 12

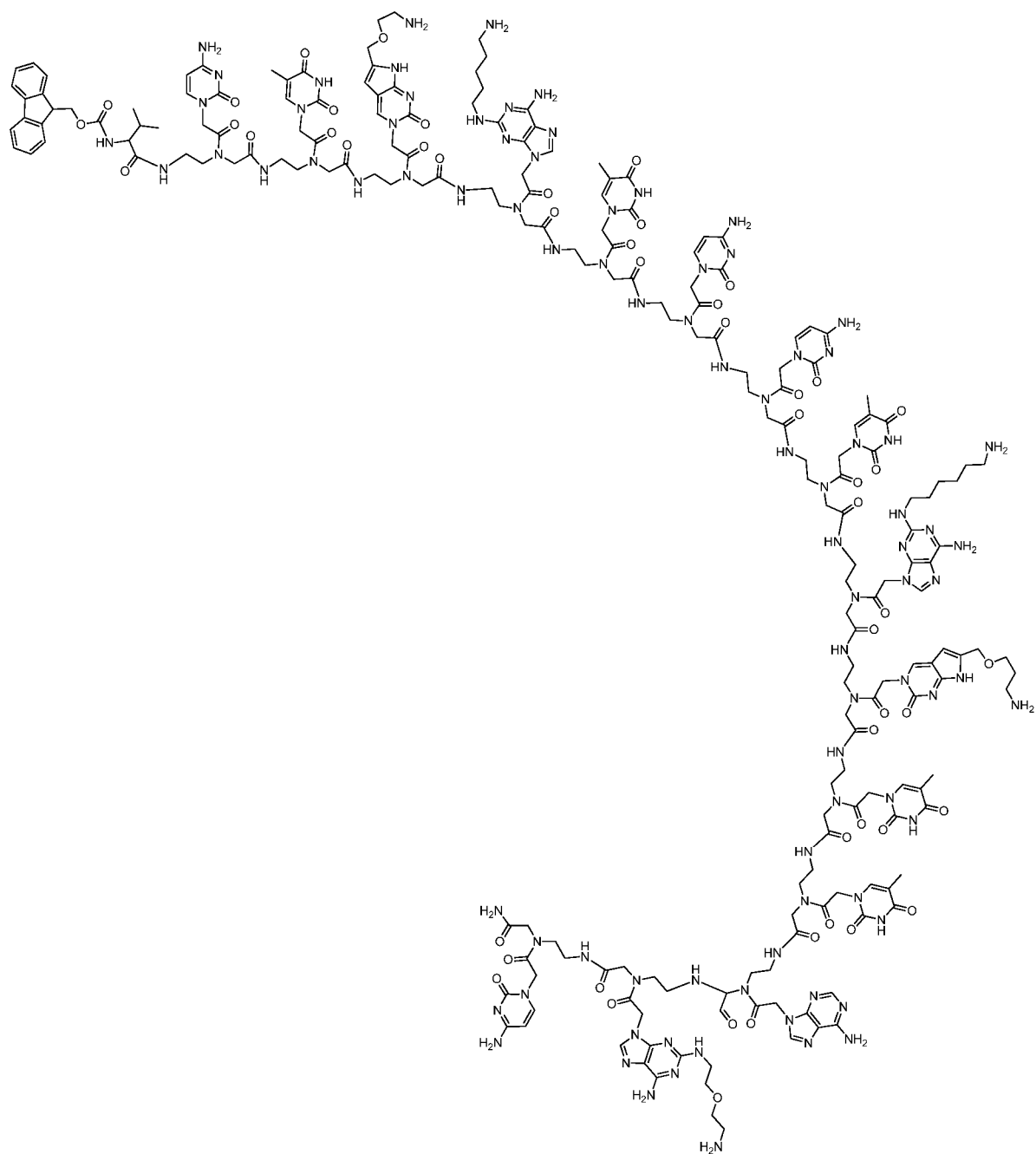


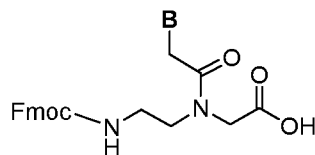
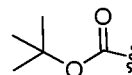
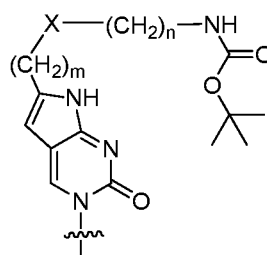
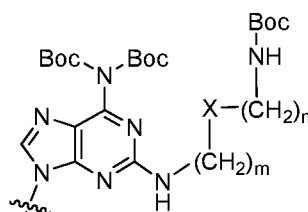
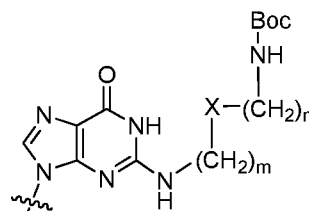
Figure 13**Fmoc-PNA Monomer****B** : Nucleobase with protecting group(s)**X** : methylene, oxygen, sulfur, or Boc-protected amino**m** : Integer**n** : Integer**Boc-****Modified Cytosine****C(mXn) : B =****Modified Adenine****A(mXn) :****B =****Modified Guanine****G(mXn) :****B =**

Figure 14

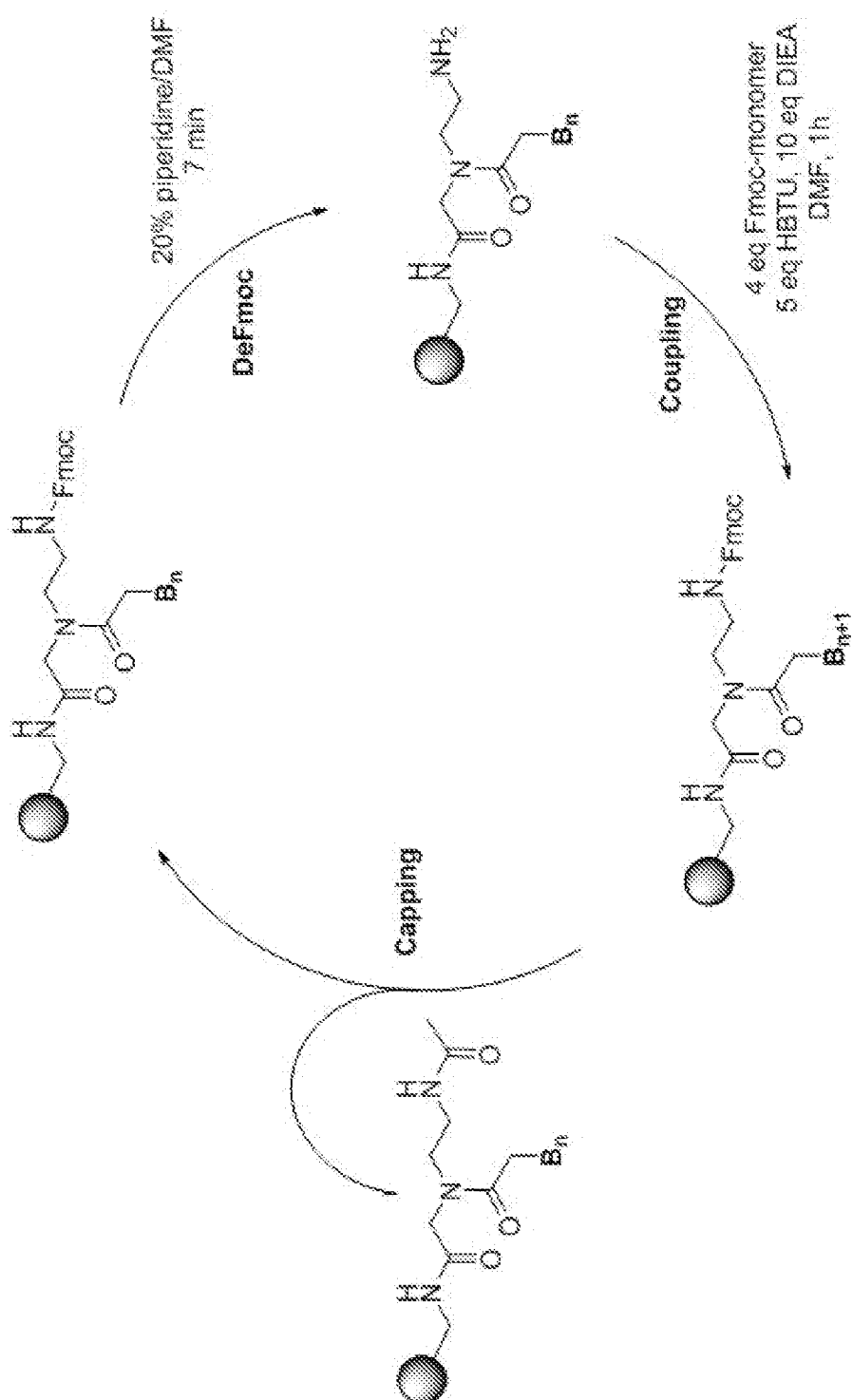


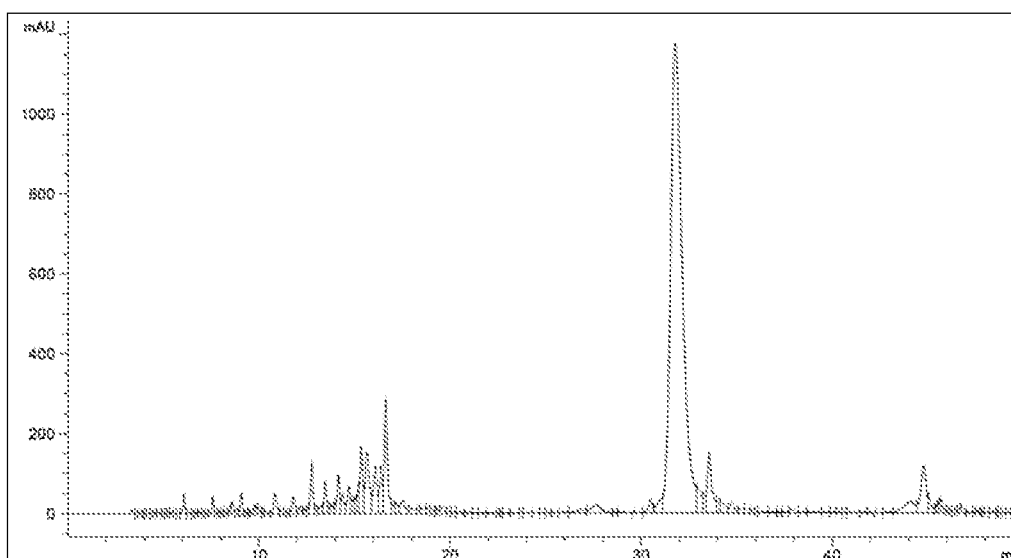
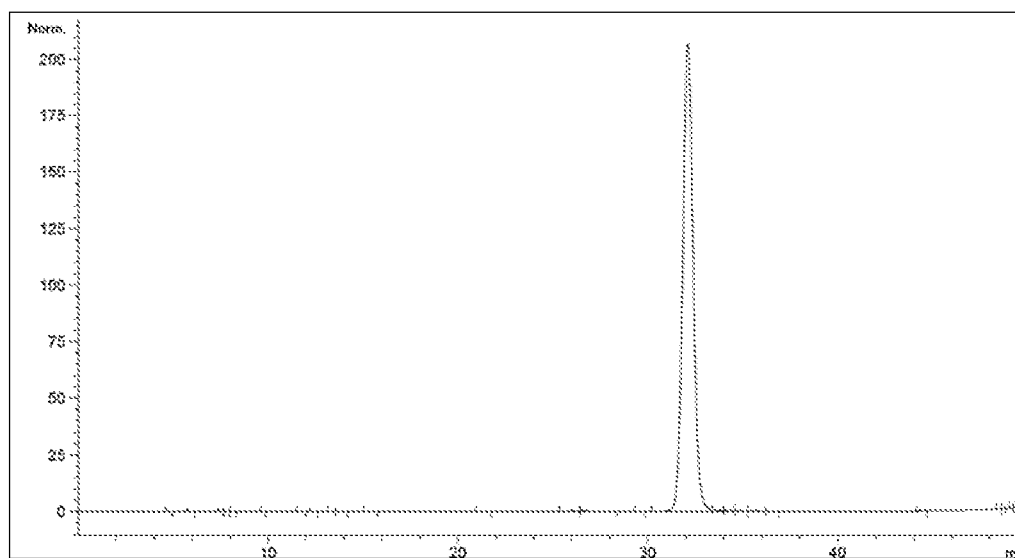
Figure 15A**Figure 15B**

Figure 16

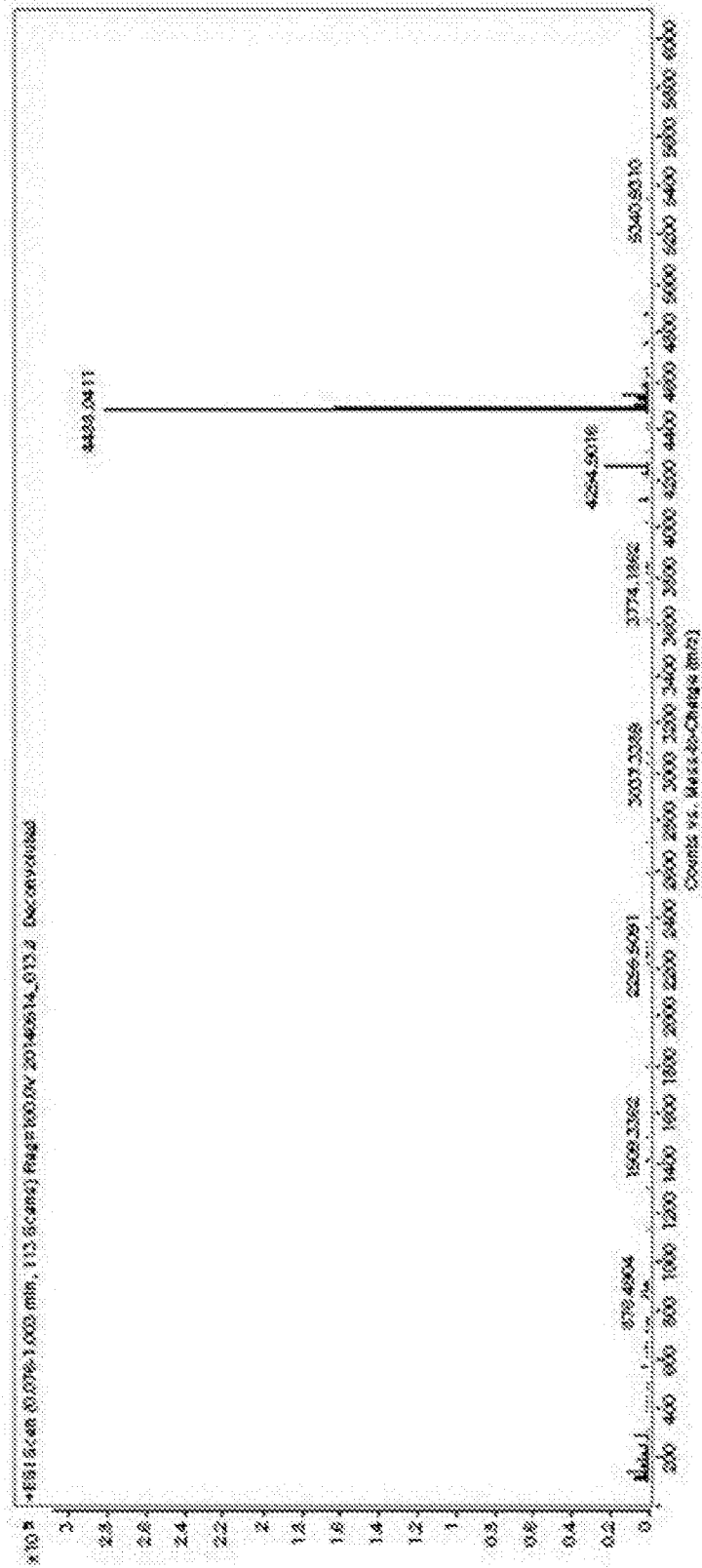


Figure 18A

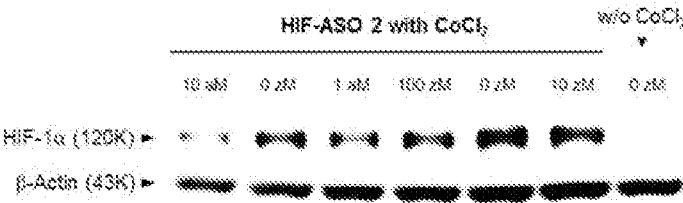


Figure 18B

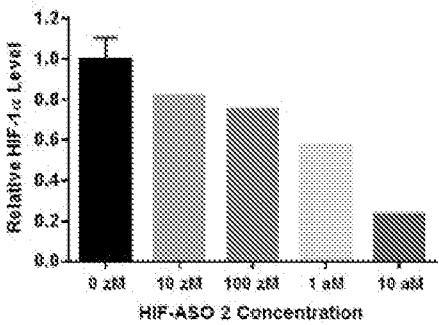


Figure 18C

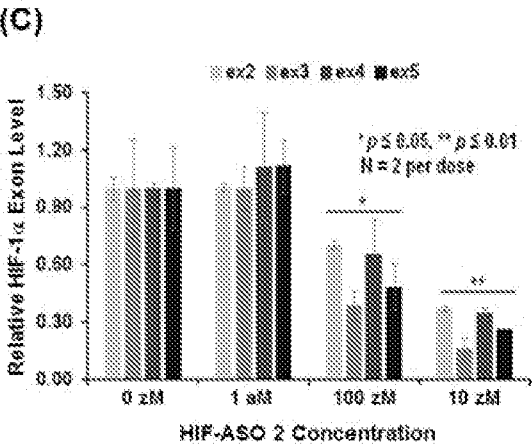


Figure 18D

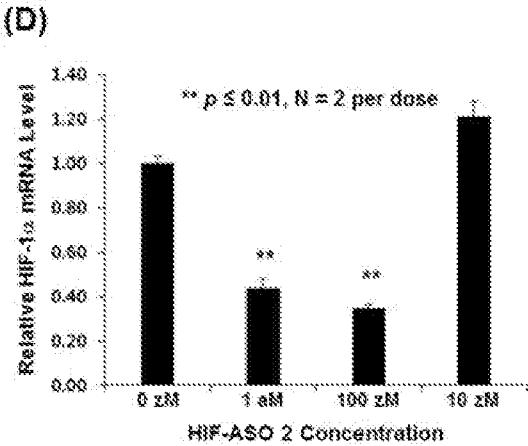


Figure 19A

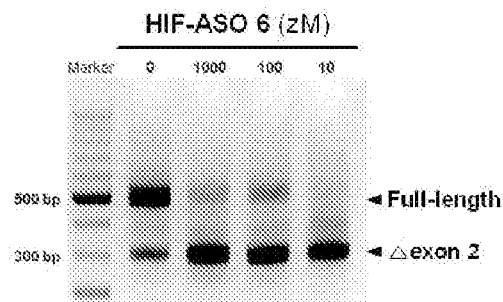


Figure 19B

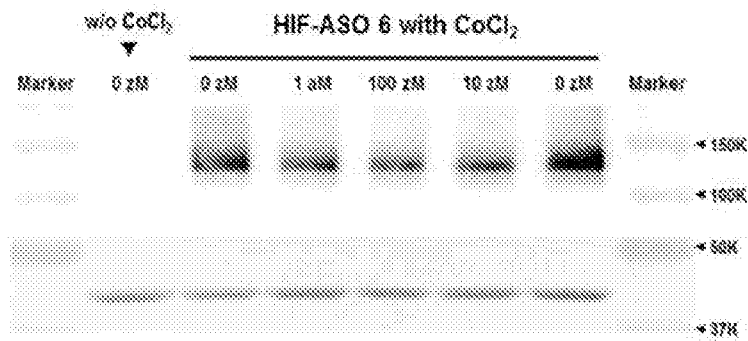


Figure 19C

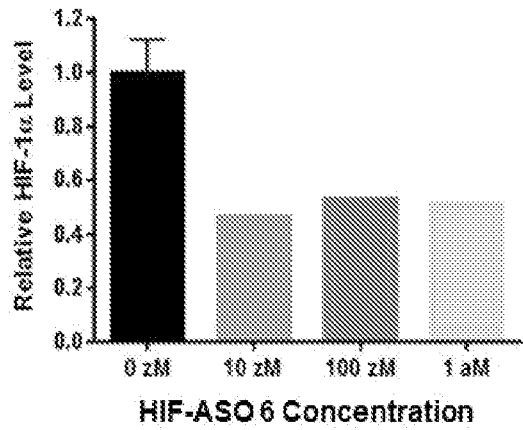


Figure 20A

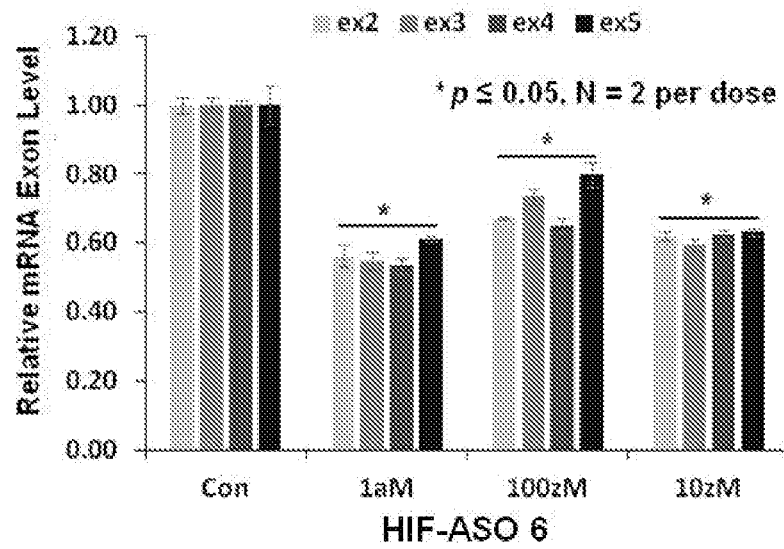


Figure 20B

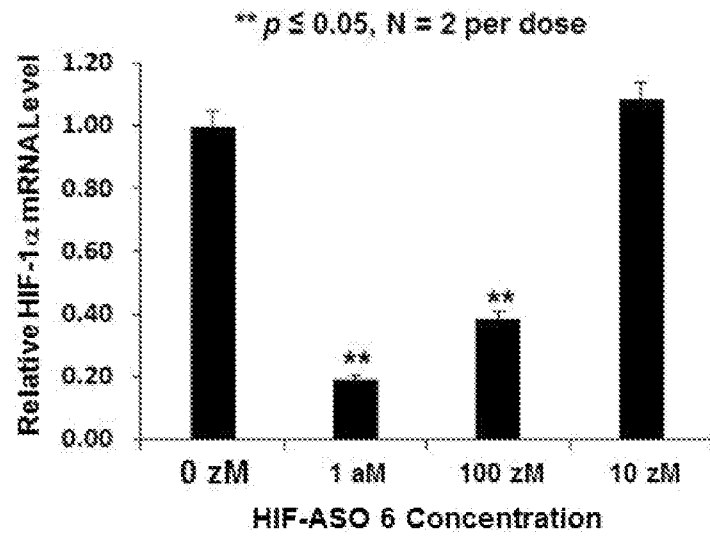


Figure 21A

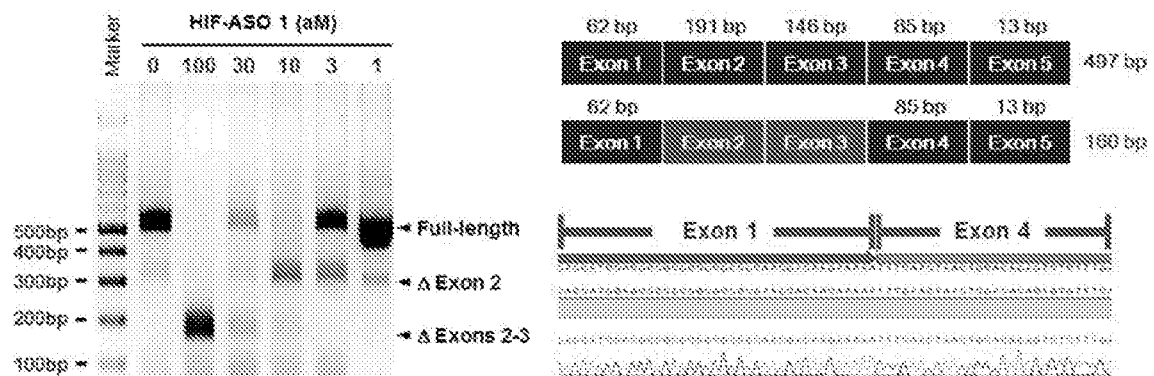


Figure 21B

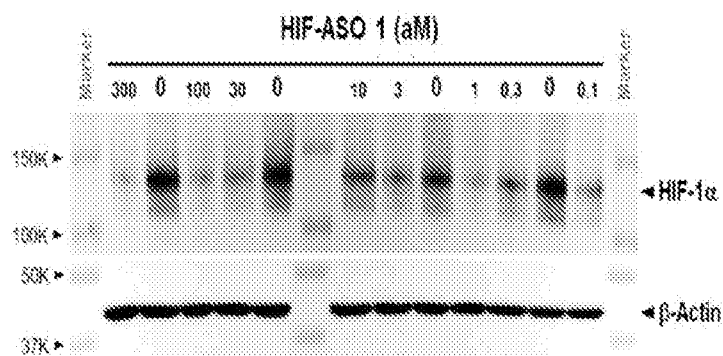


Figure 21C

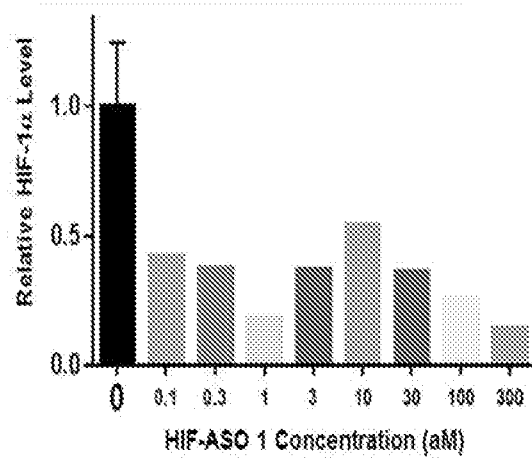


Figure 22A

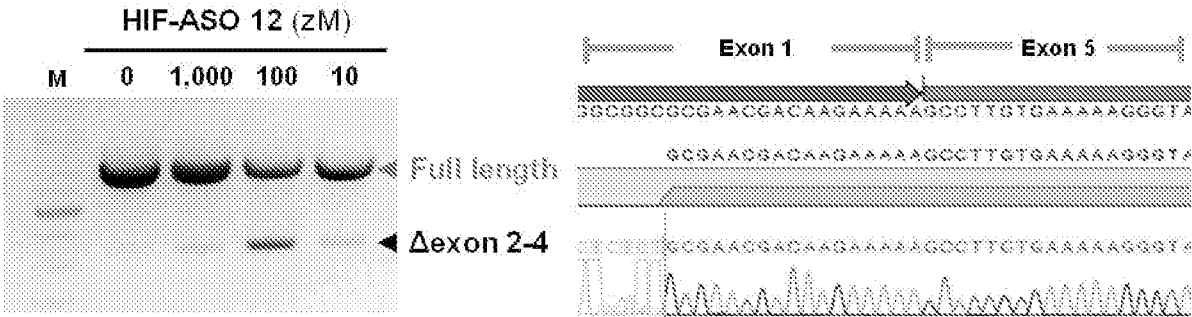


Figure 22B

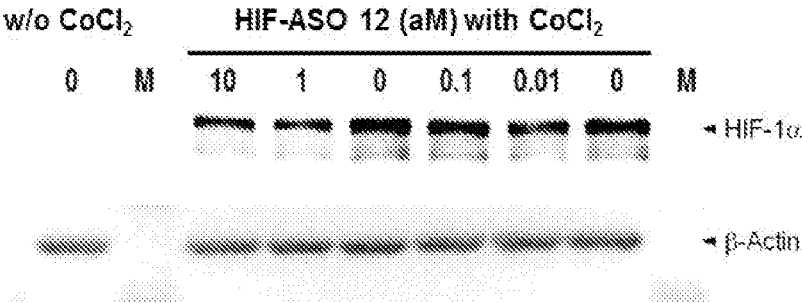


Figure 22C

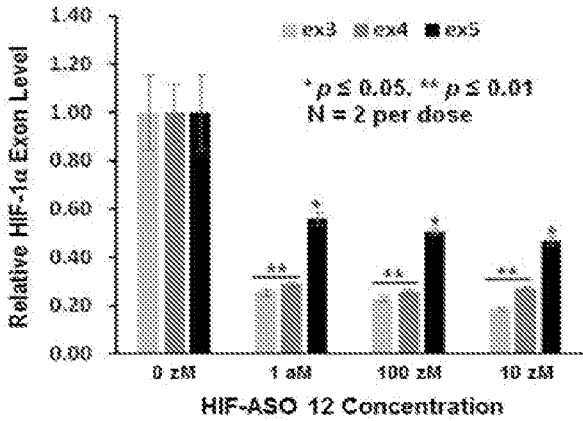


Figure 23A

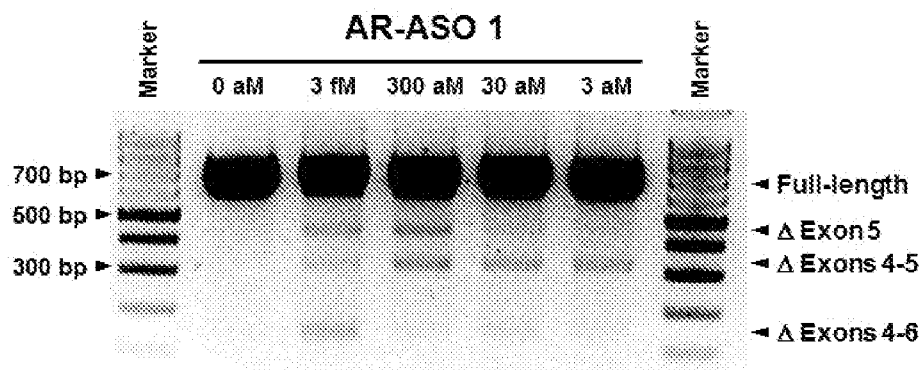


Figure 23B

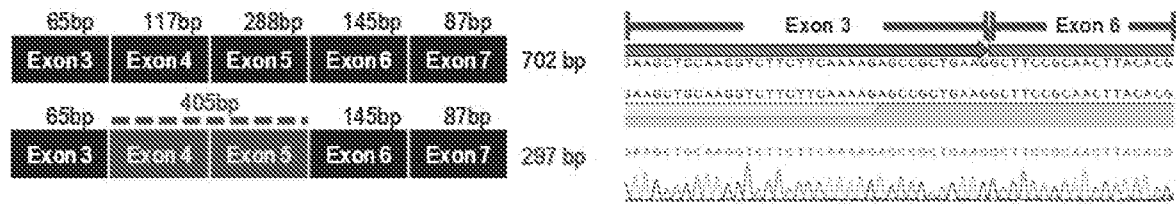


Figure 23C

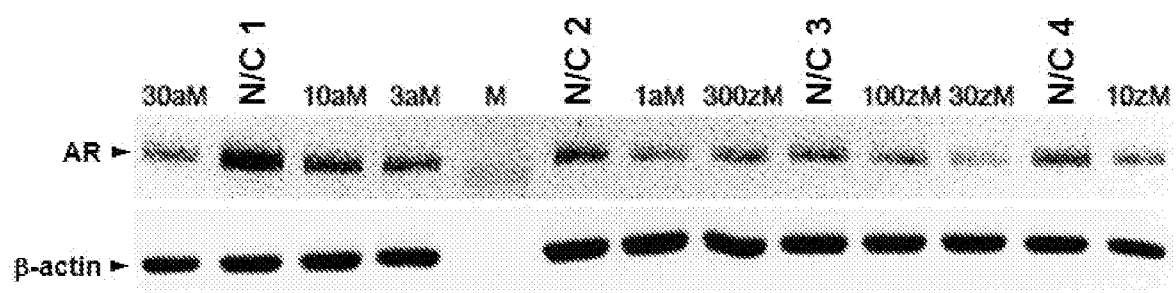


Figure 24A

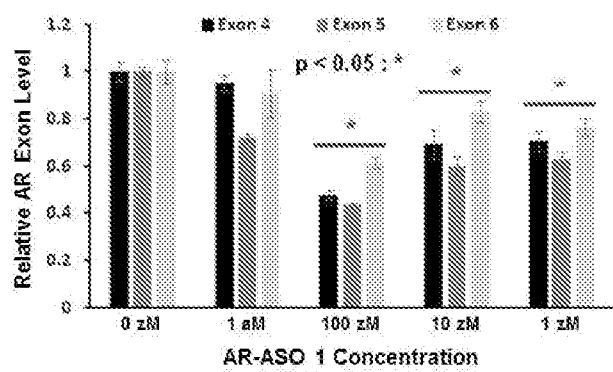


Figure 24B

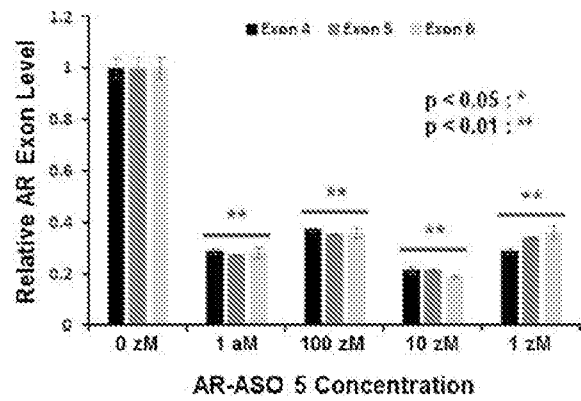


Figure 24C

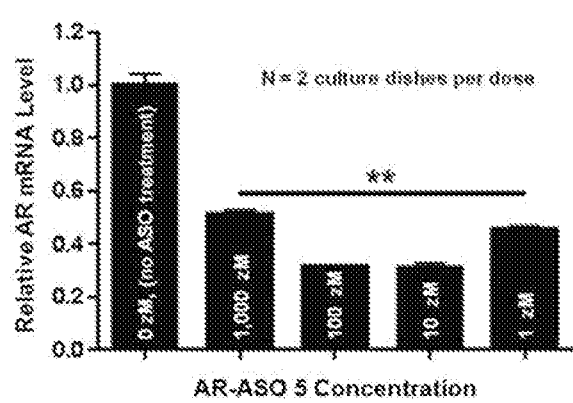


Figure 25A

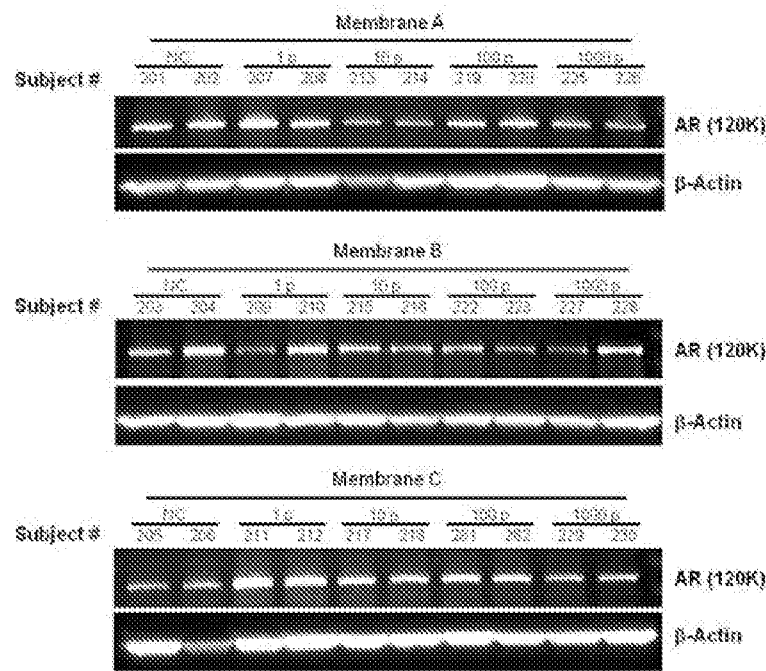


Figure 25B

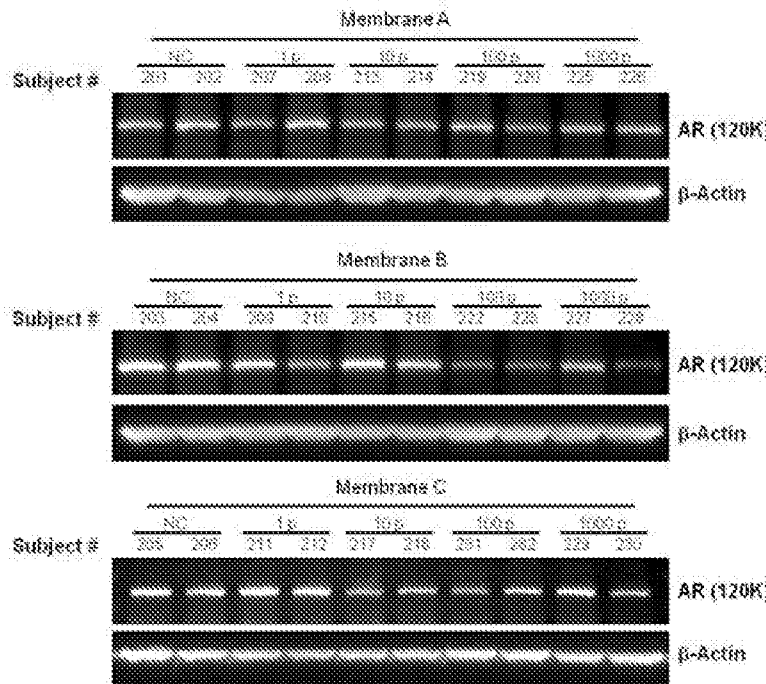


Figure 26A

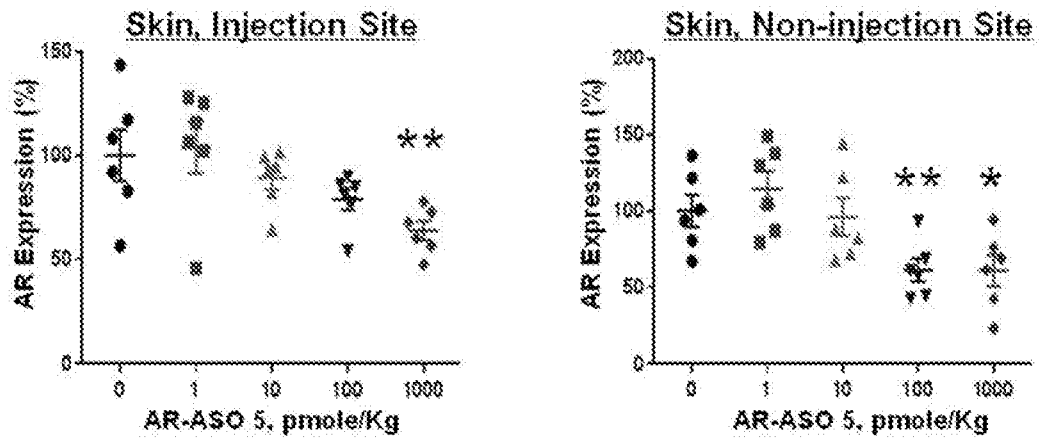


Figure 26B

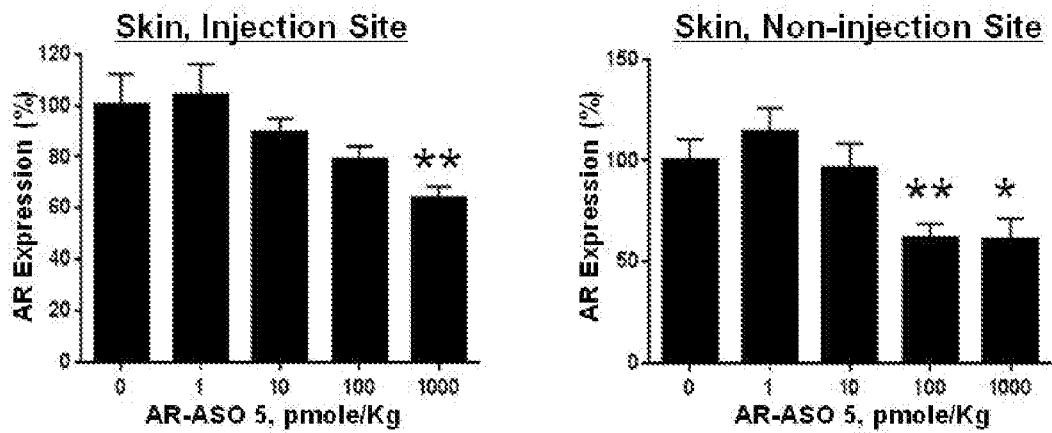


Figure 27A

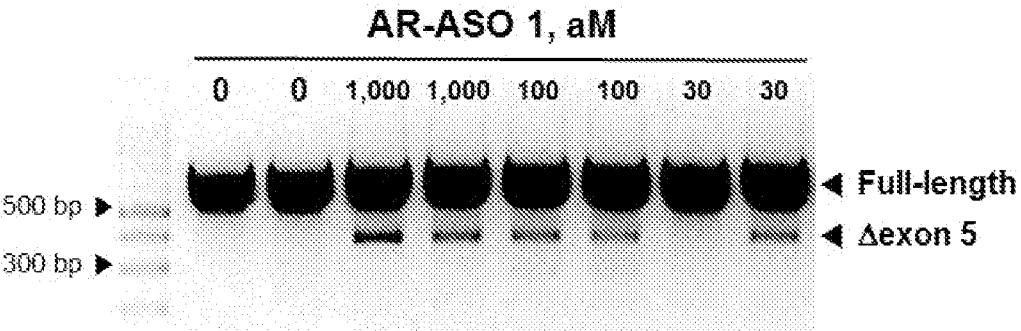


Figure 27B

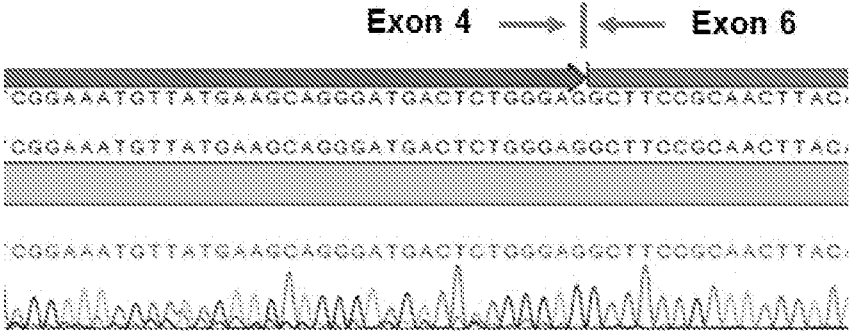


Figure 28A

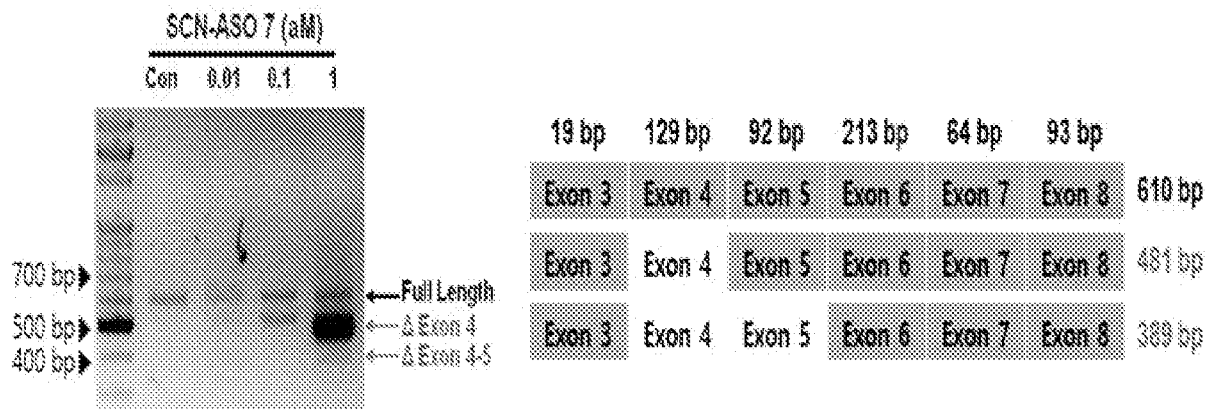


Figure 28B

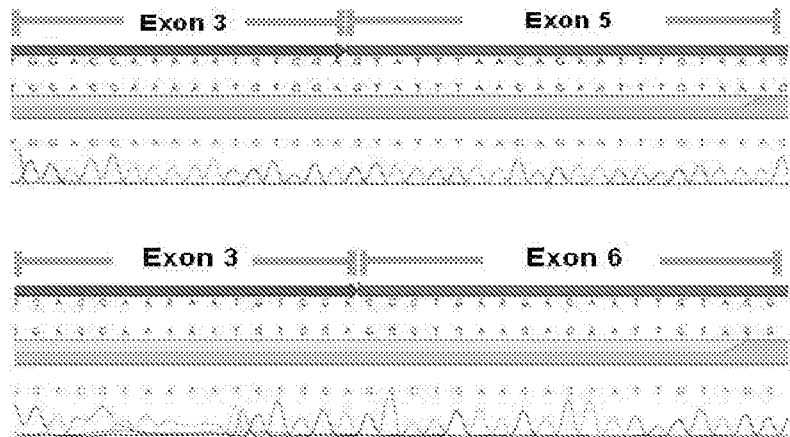


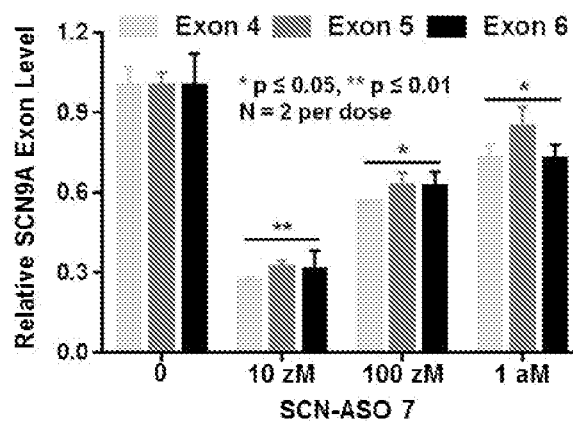
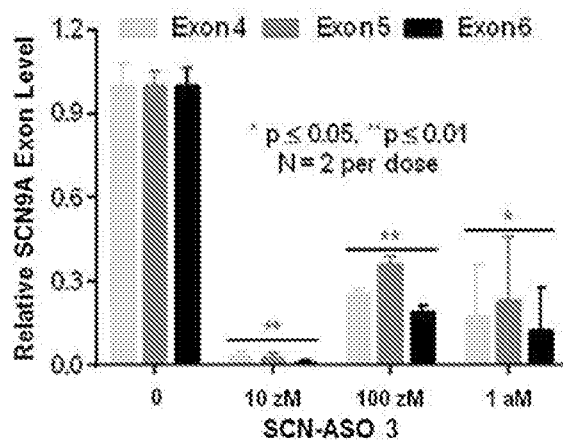
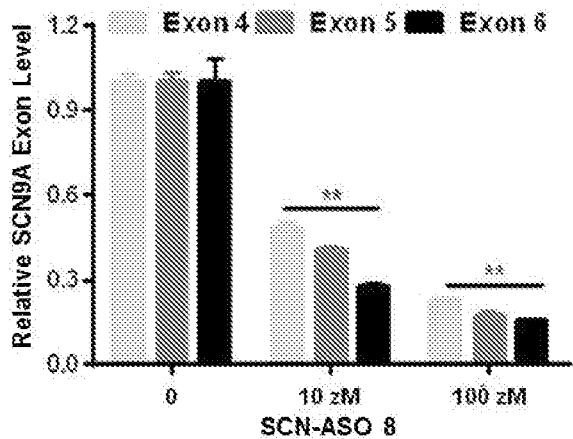
Figure 29A**Figure 29B****Figure 29C**

Figure 30A

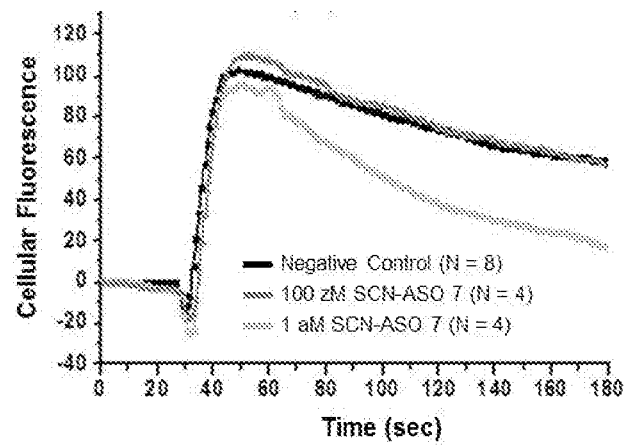


Figure 30B

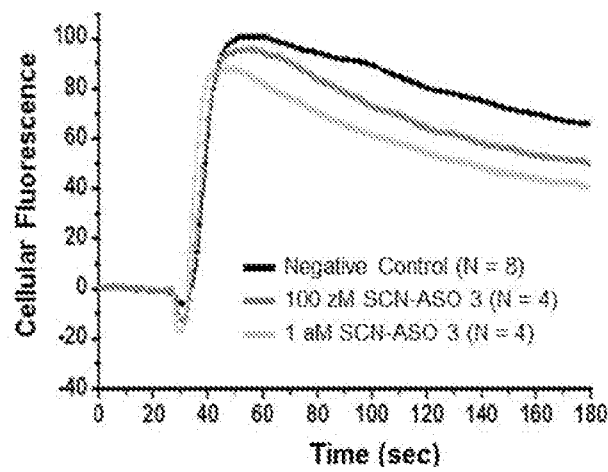


Figure 30C

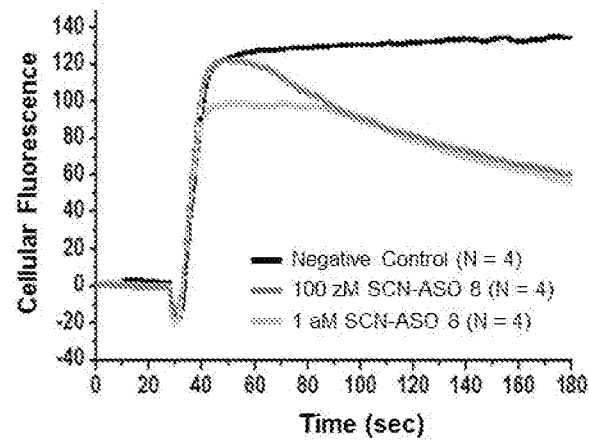


Figure 31A

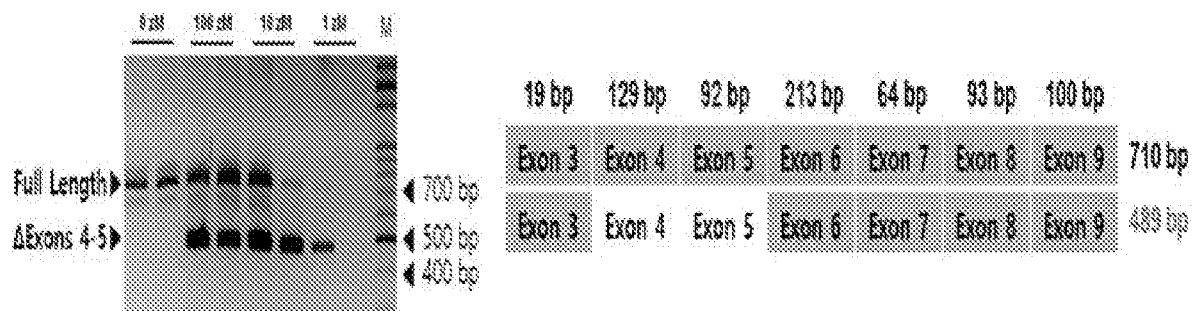


Figure 31B

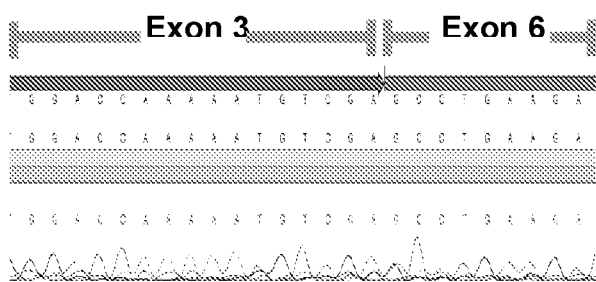


Figure 31C

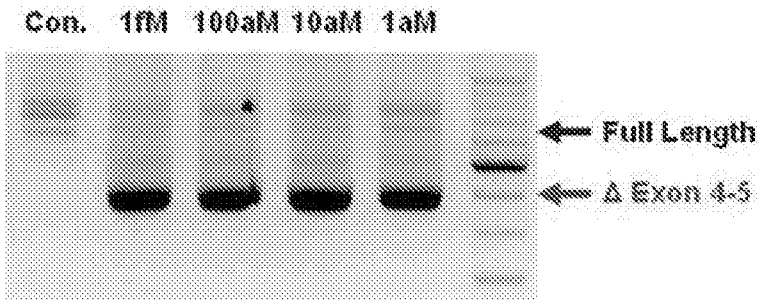


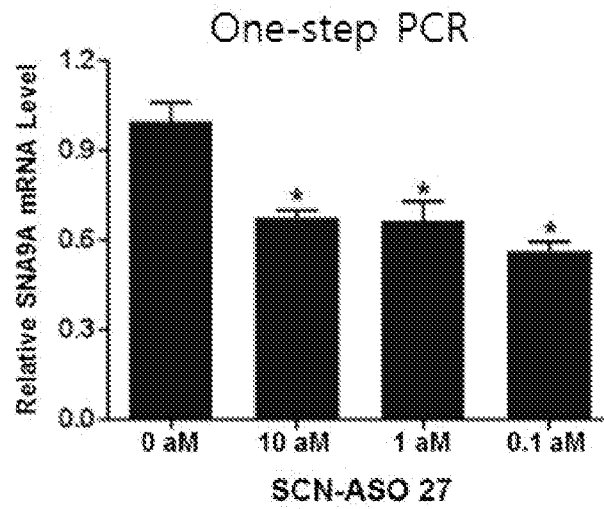
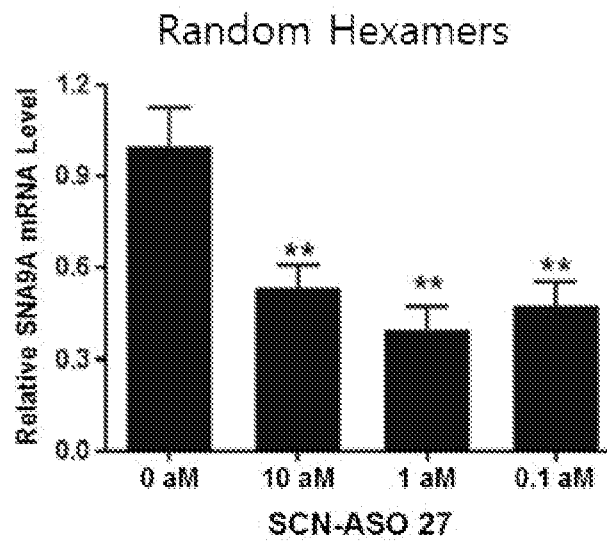
Figure 32A**Figure 32B**

Figure 33A

DRG with L5/L6 Ligation

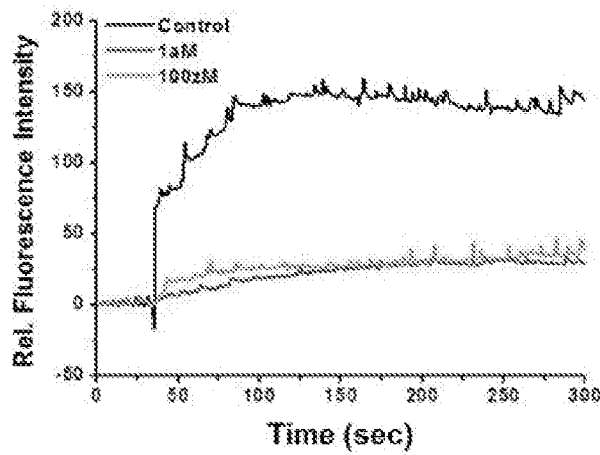


Figure 33B

DRG without L5/L6 Ligation

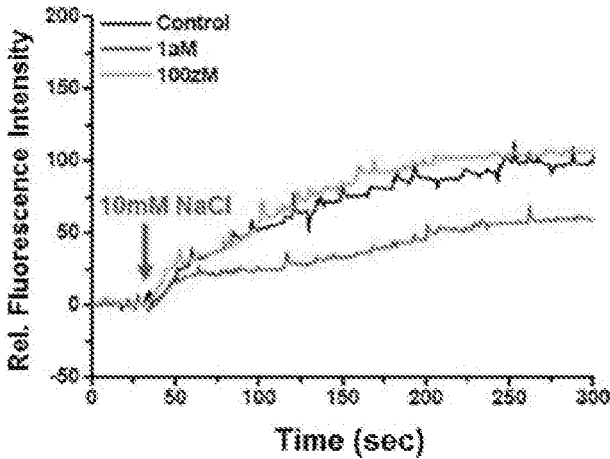


Figure 34A

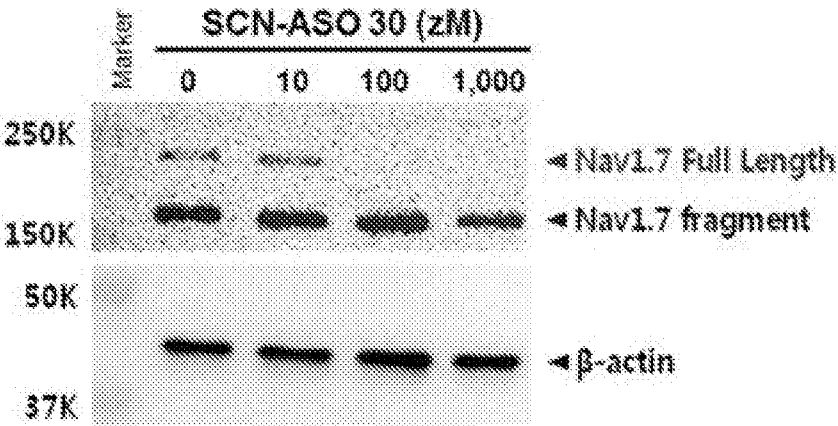


Figure 34B

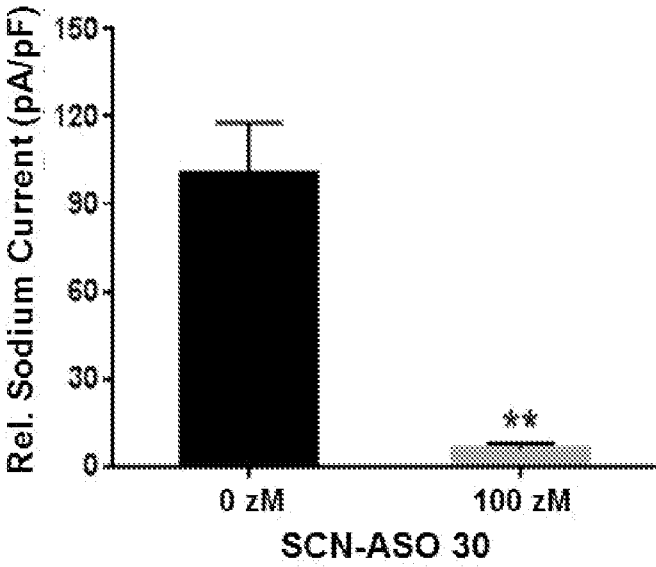


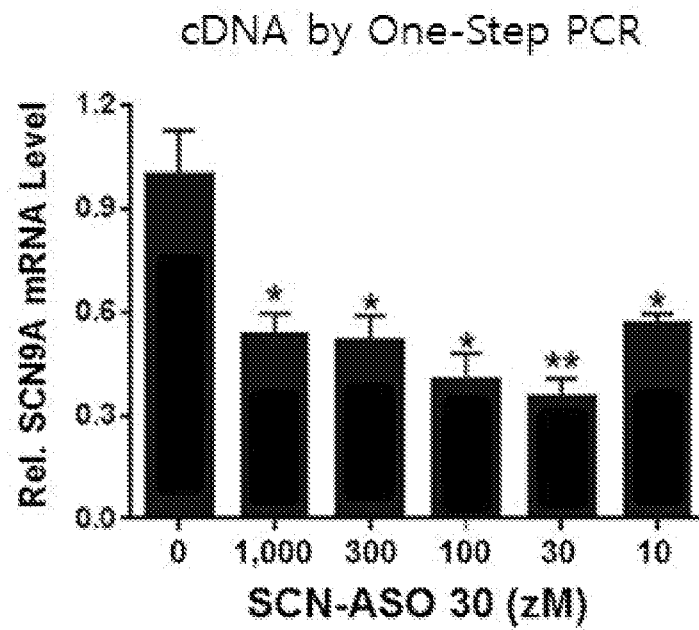
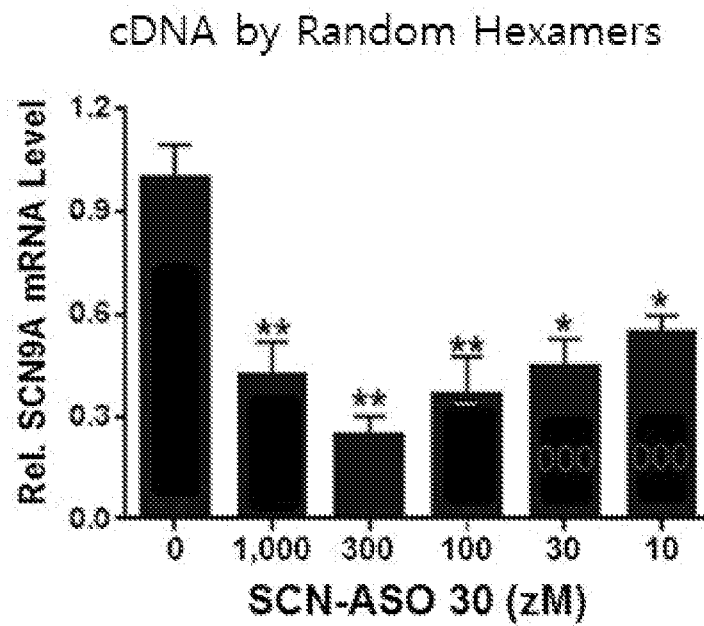
Figure 35A**Figure 35B**

Figure 36

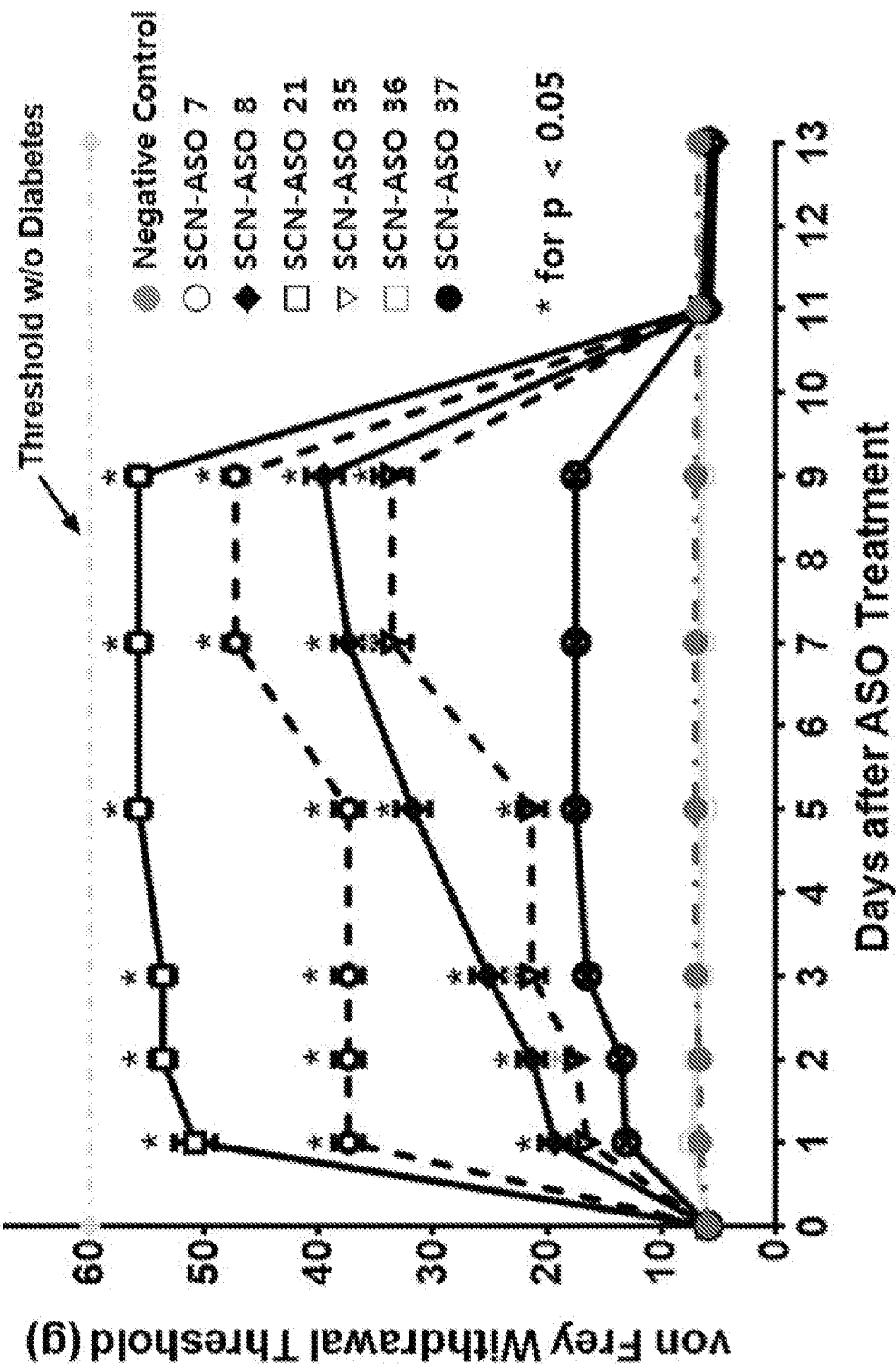


Figure 37A

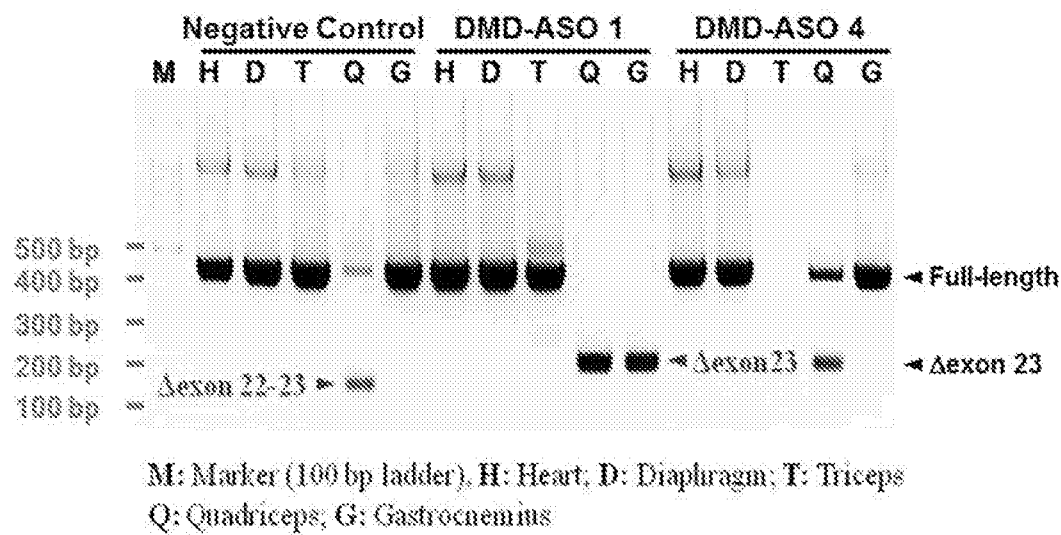


Figure 37B

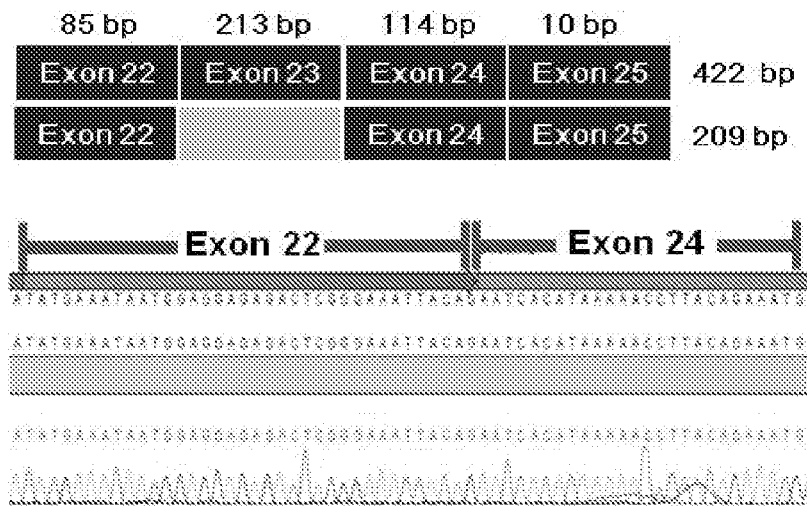


Figure 38A

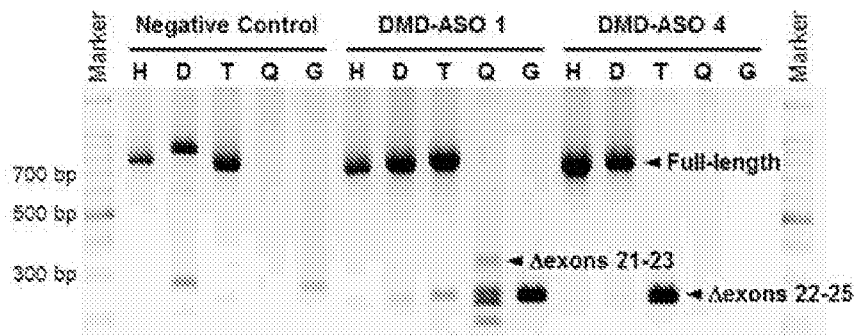


Figure 38B

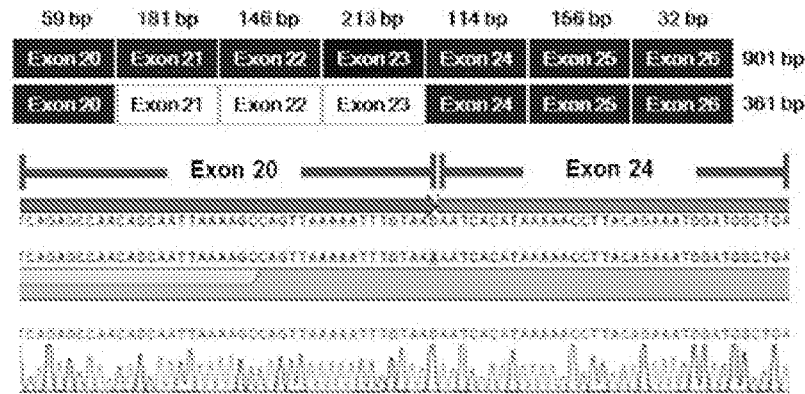


Figure 38C

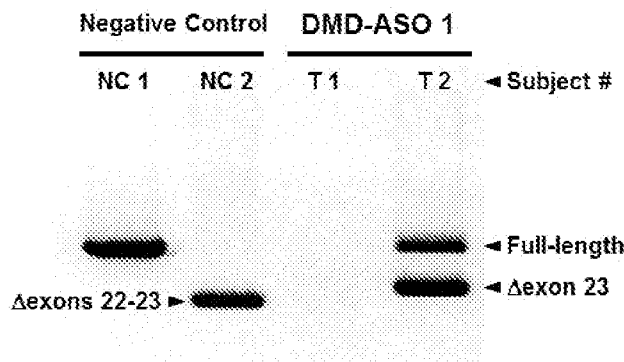


Figure 39A

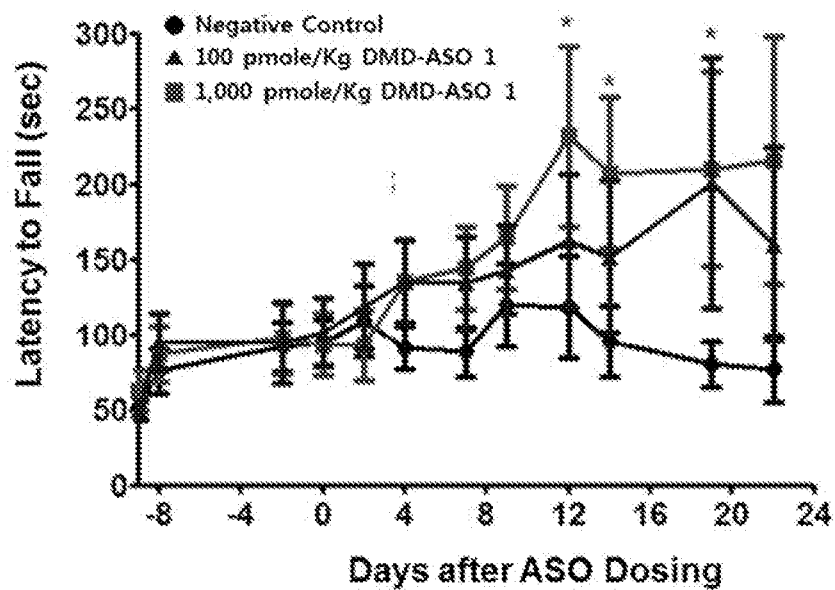


Figure 39B

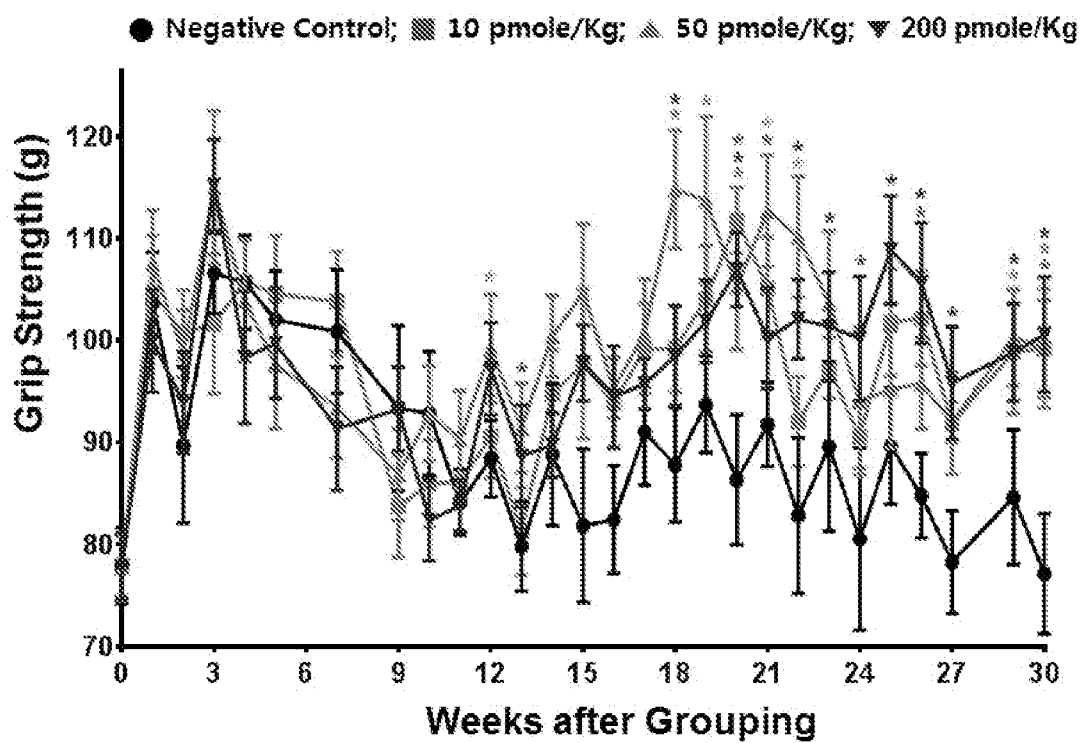


Figure 40

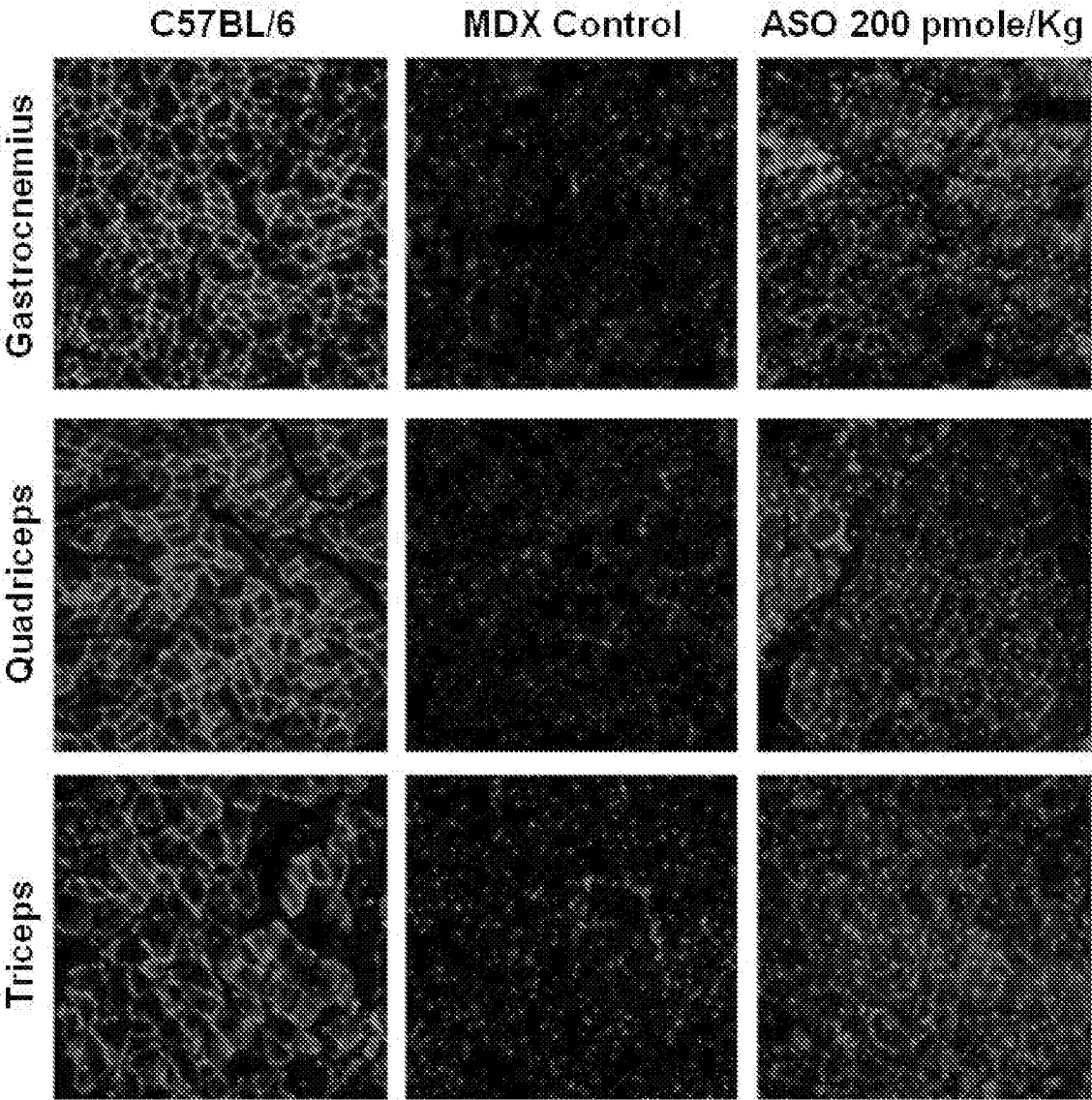


Figure 41

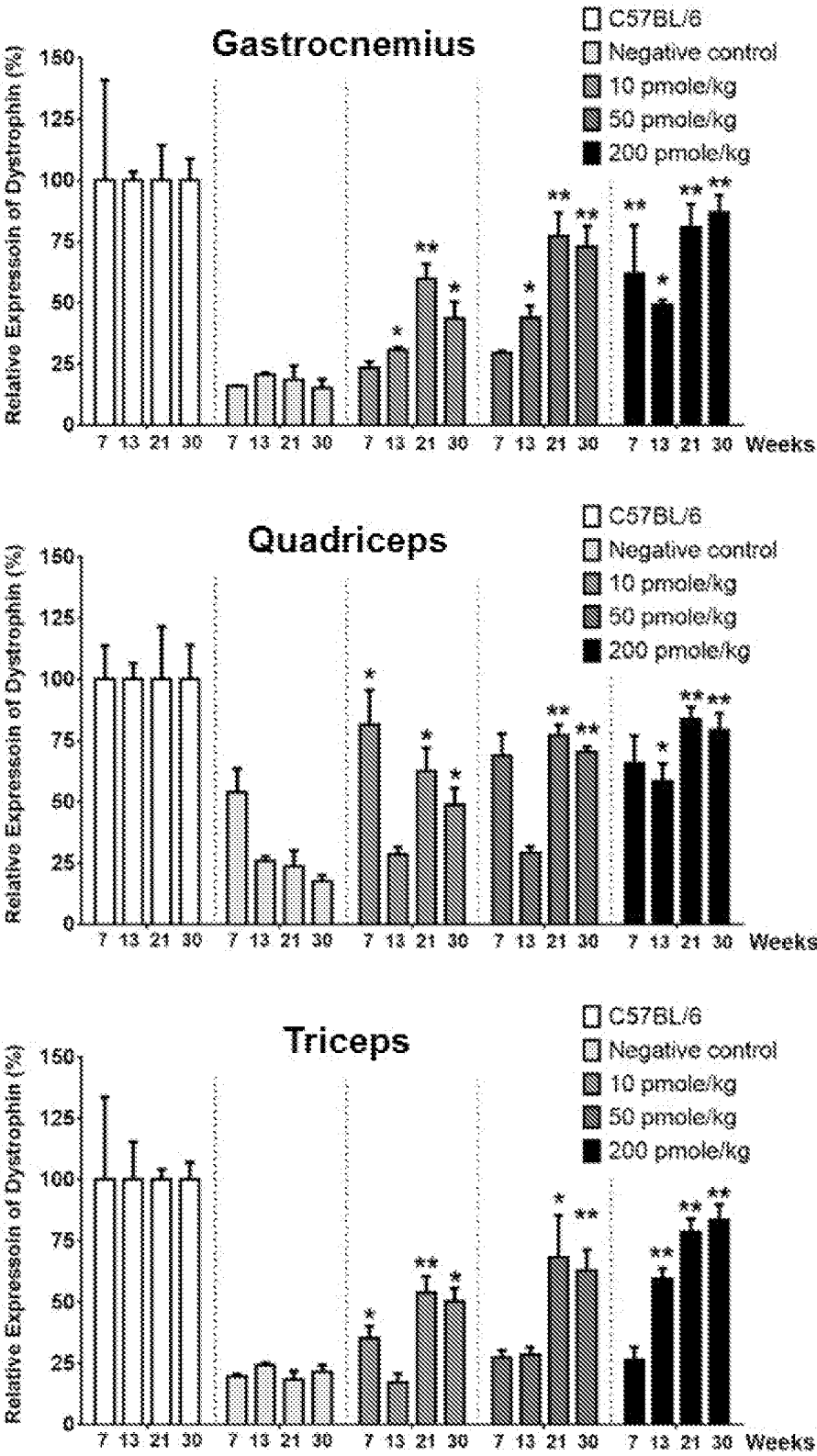


Figure 42

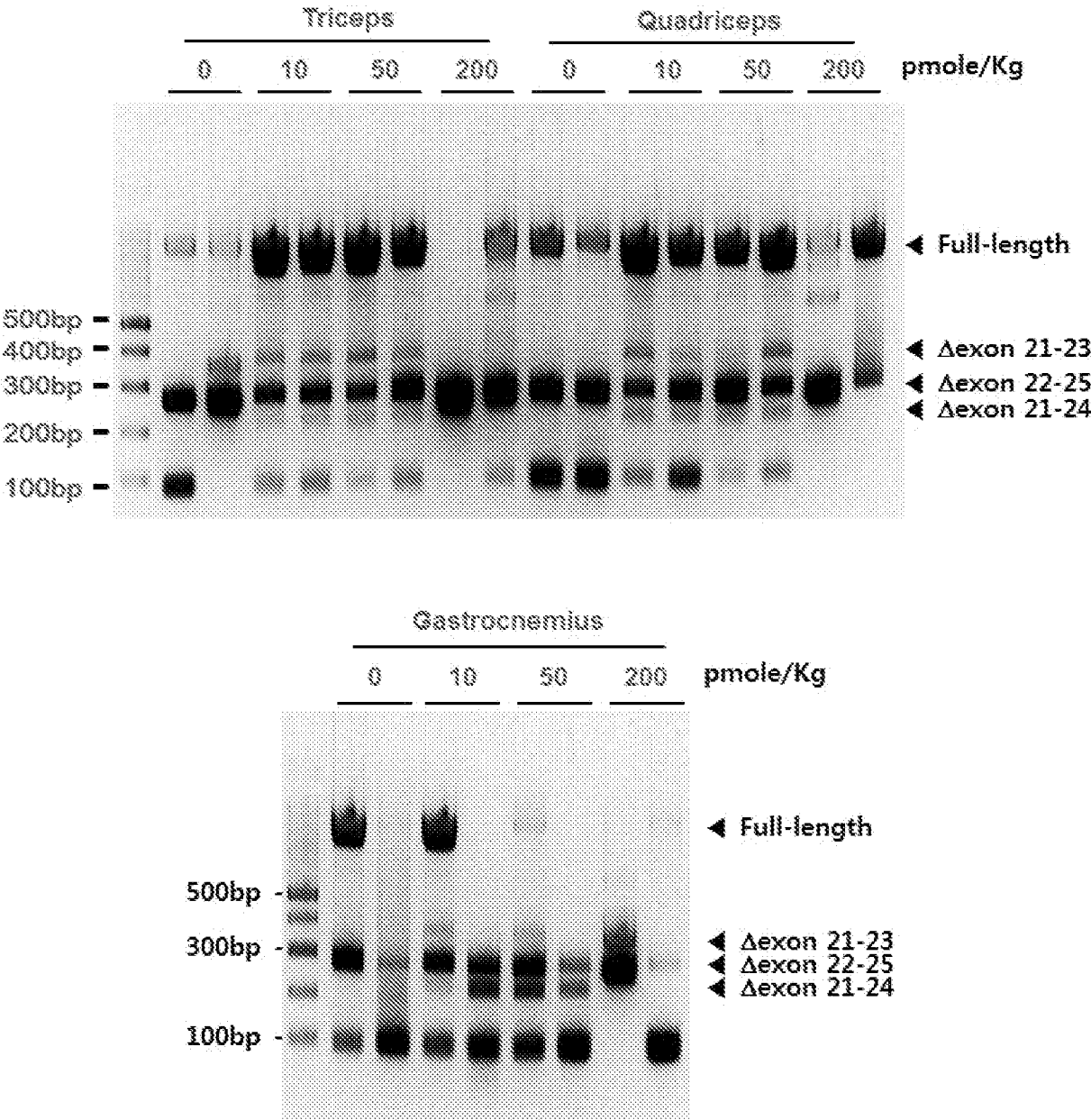


Figure 43

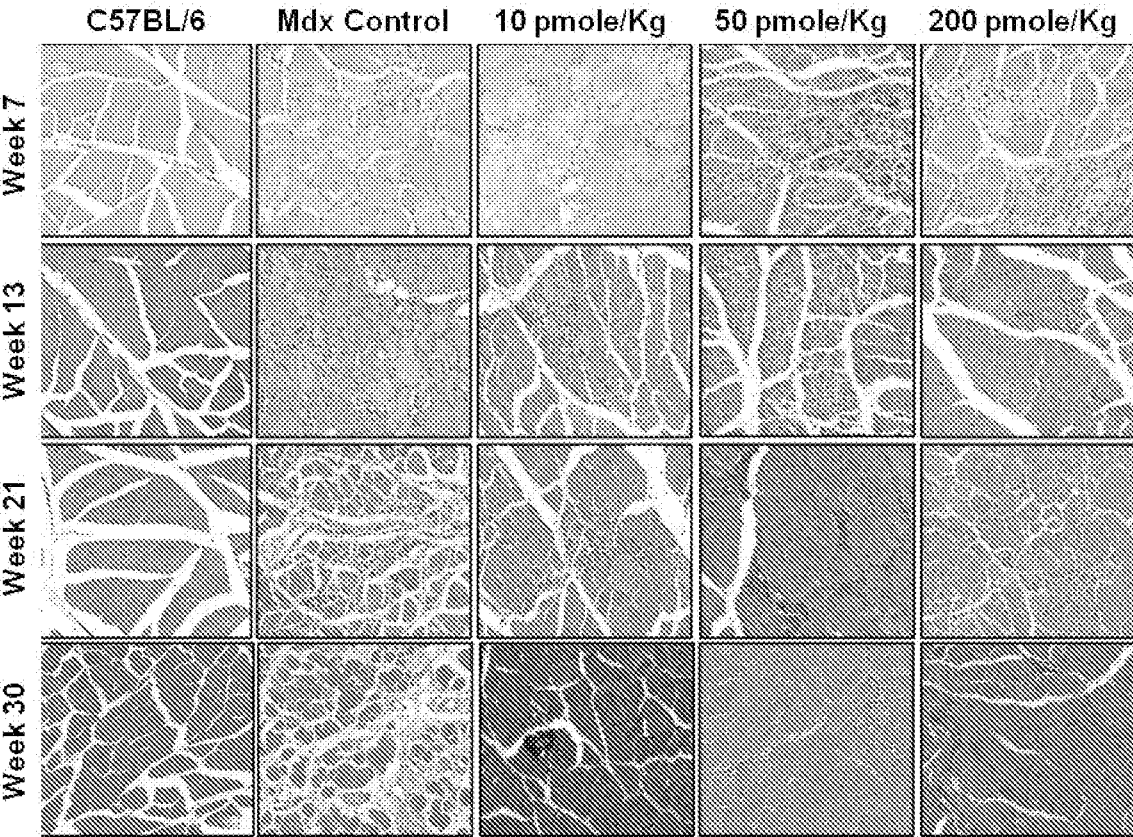


Figure 44A

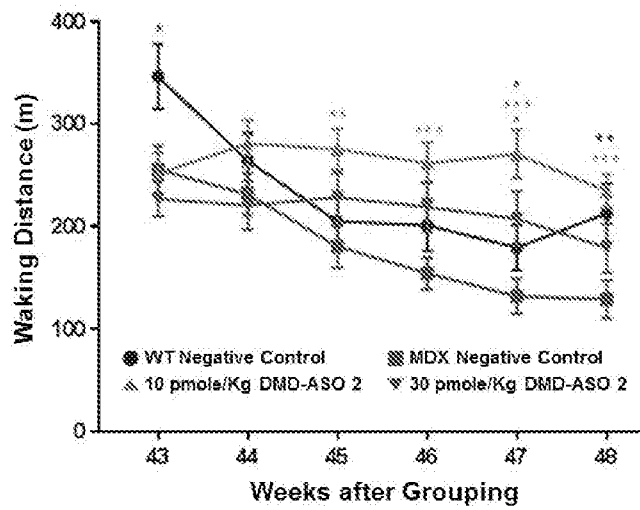


Figure 44B

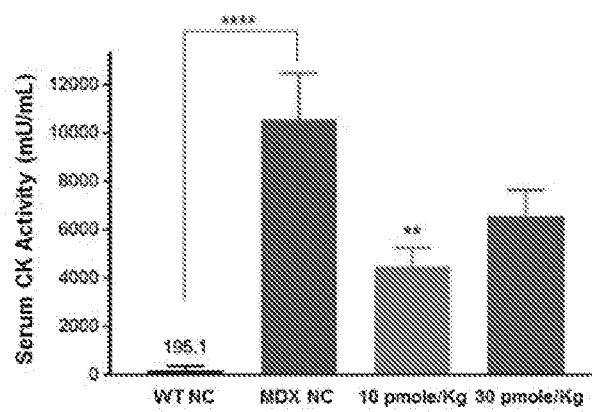


Figure 44C

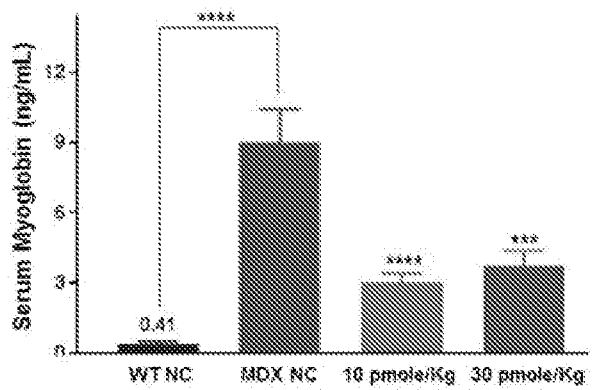


Figure 45A

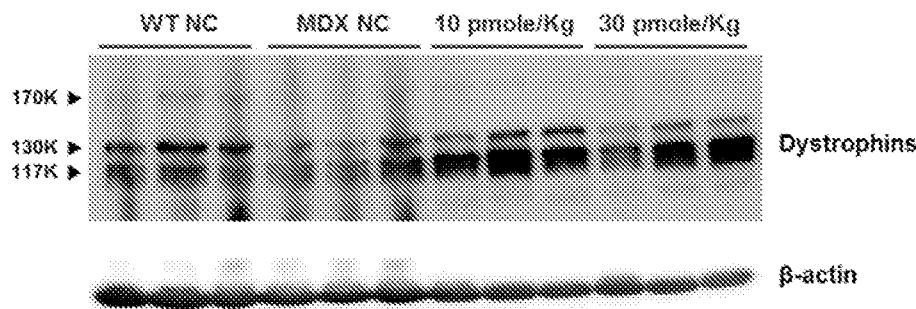


Figure 45B

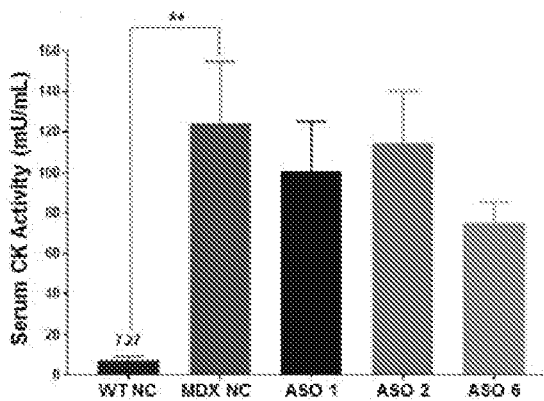


Figure 45C

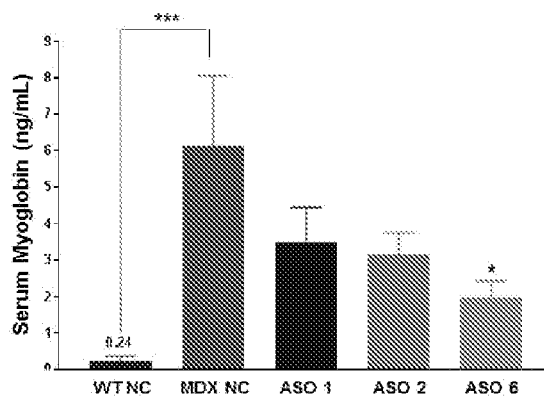


Figure 46A

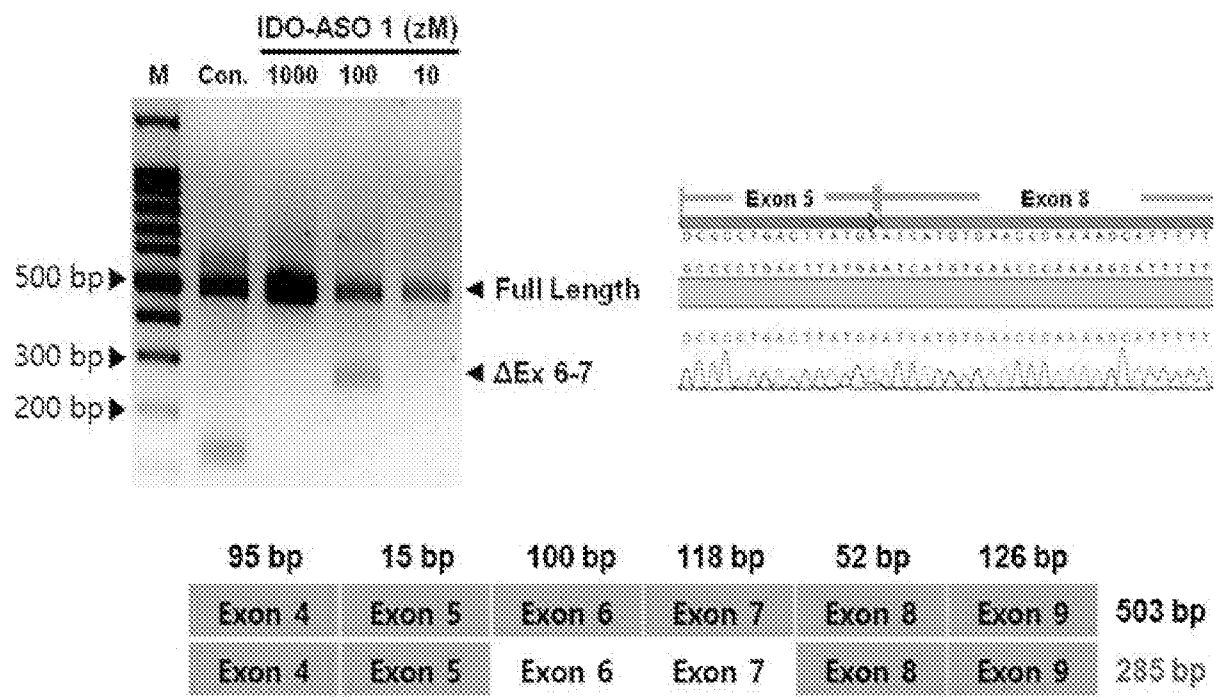


Figure 46B

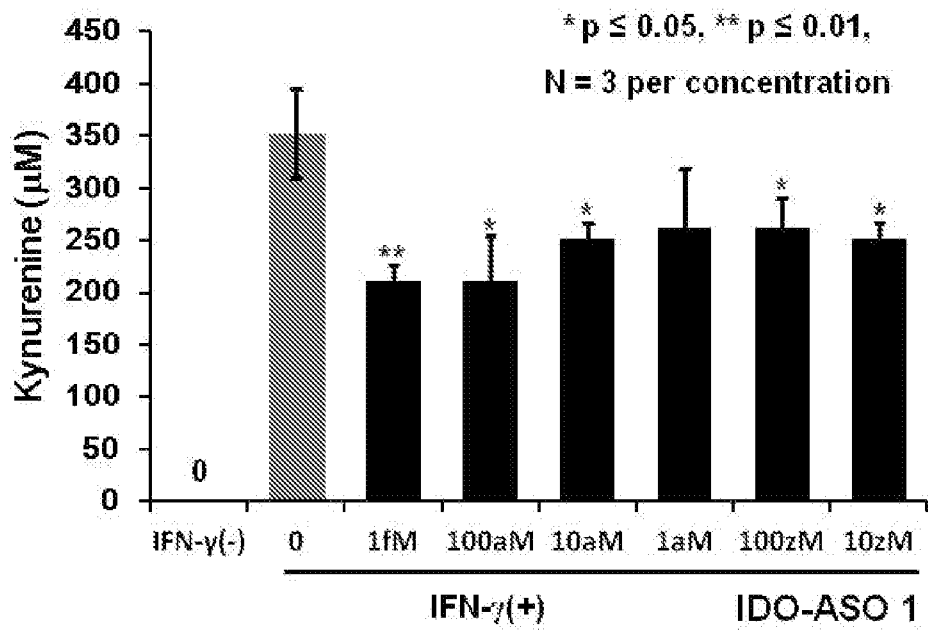


Figure 47A

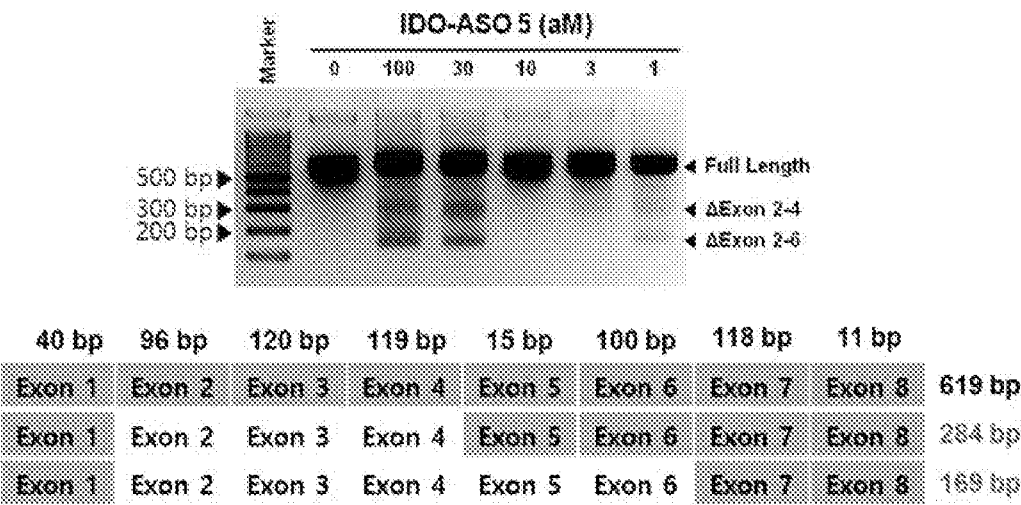


Figure 47B

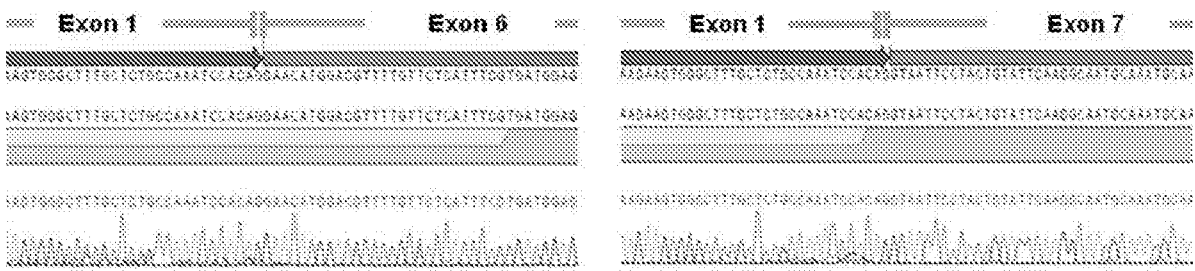


Figure 47C

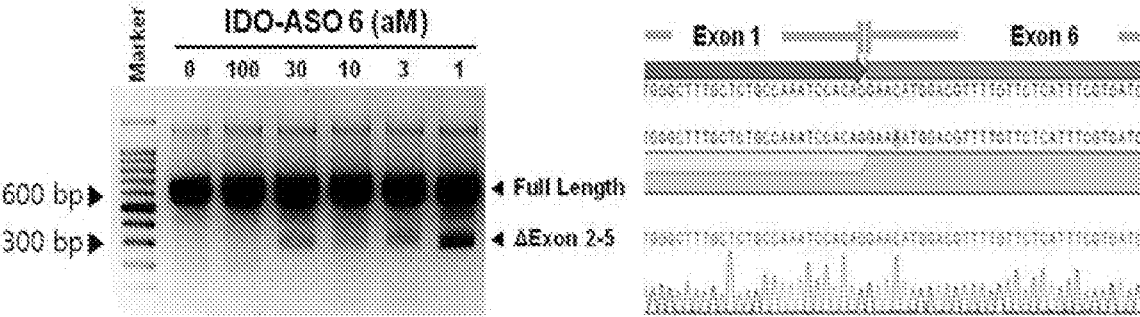


Figure 48A

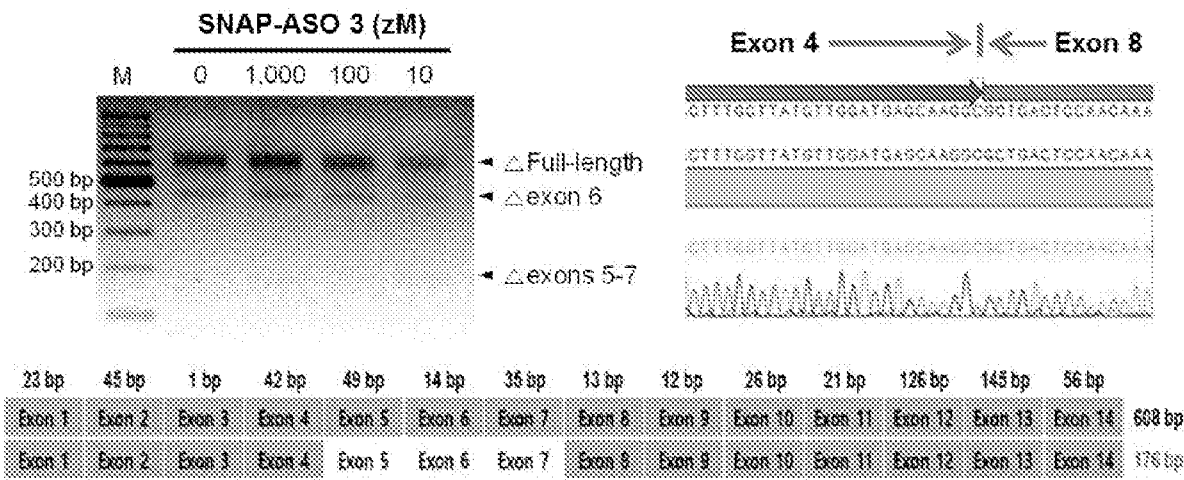


Figure 48B

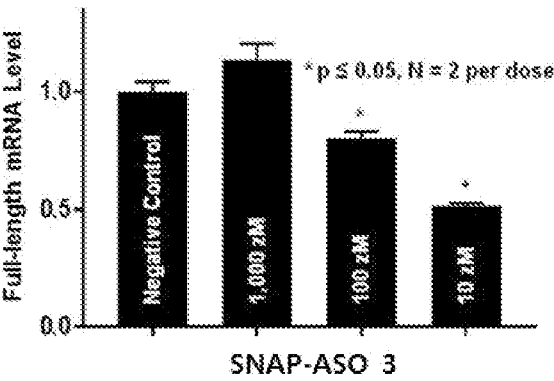


Figure 48C

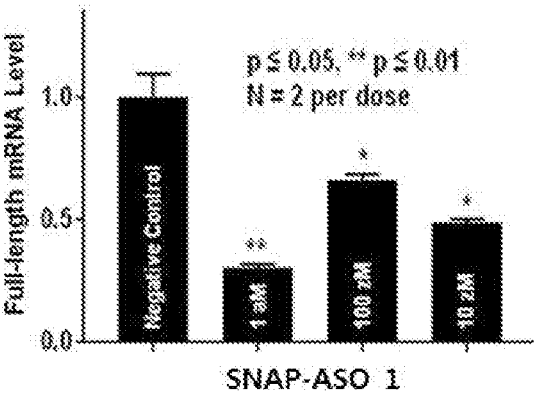


Figure 49A

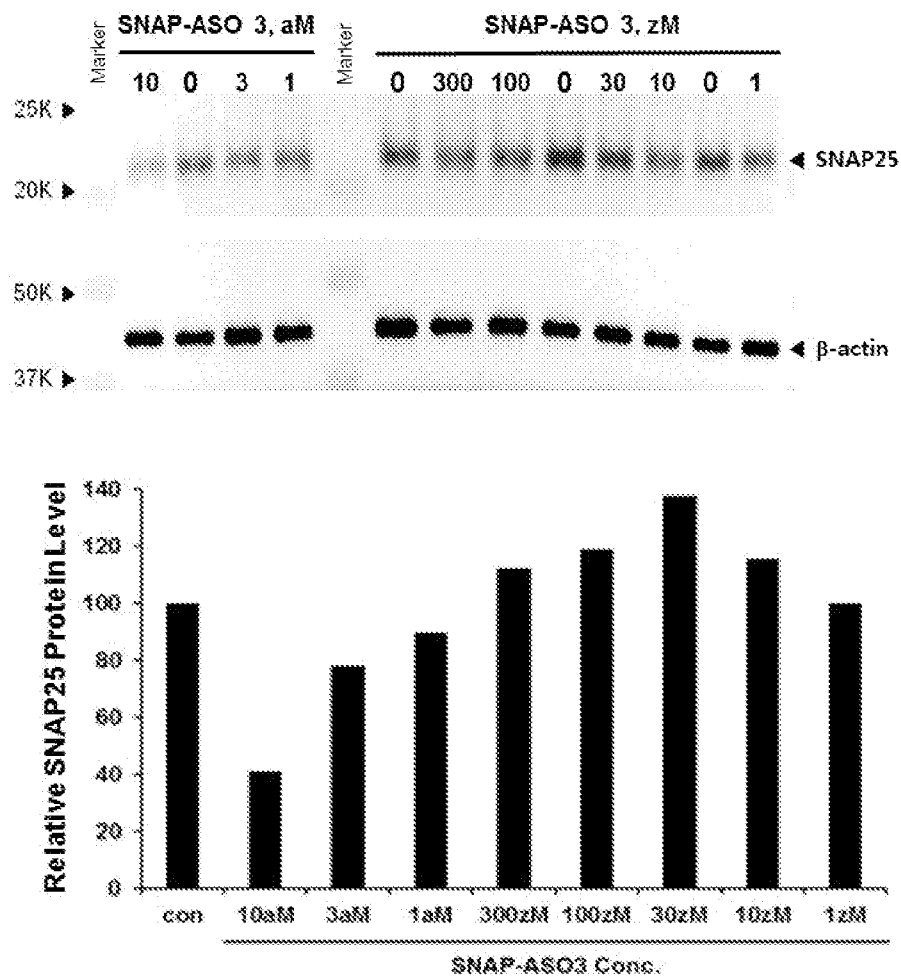


Figure 49B



Figure 50A

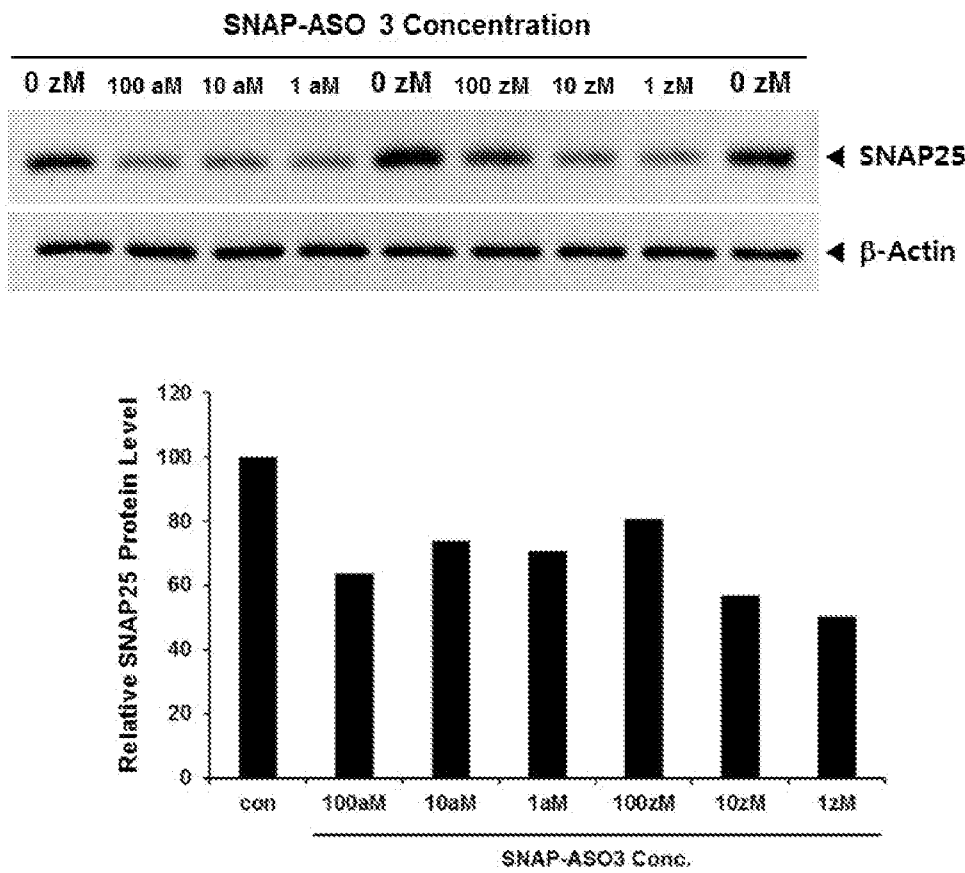


Figure 50B

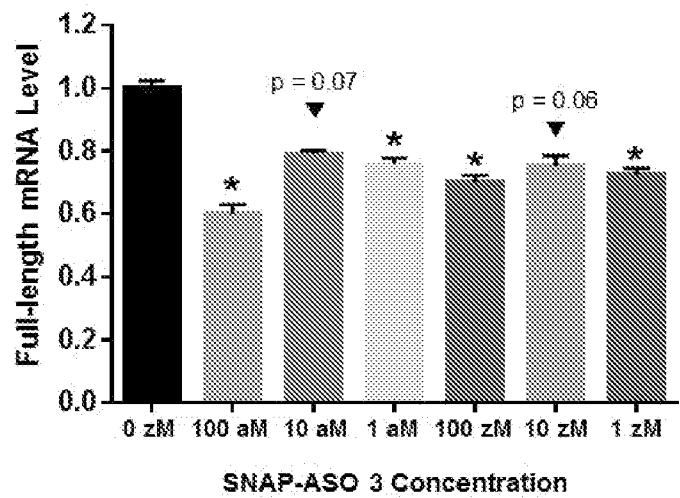


Figure 51

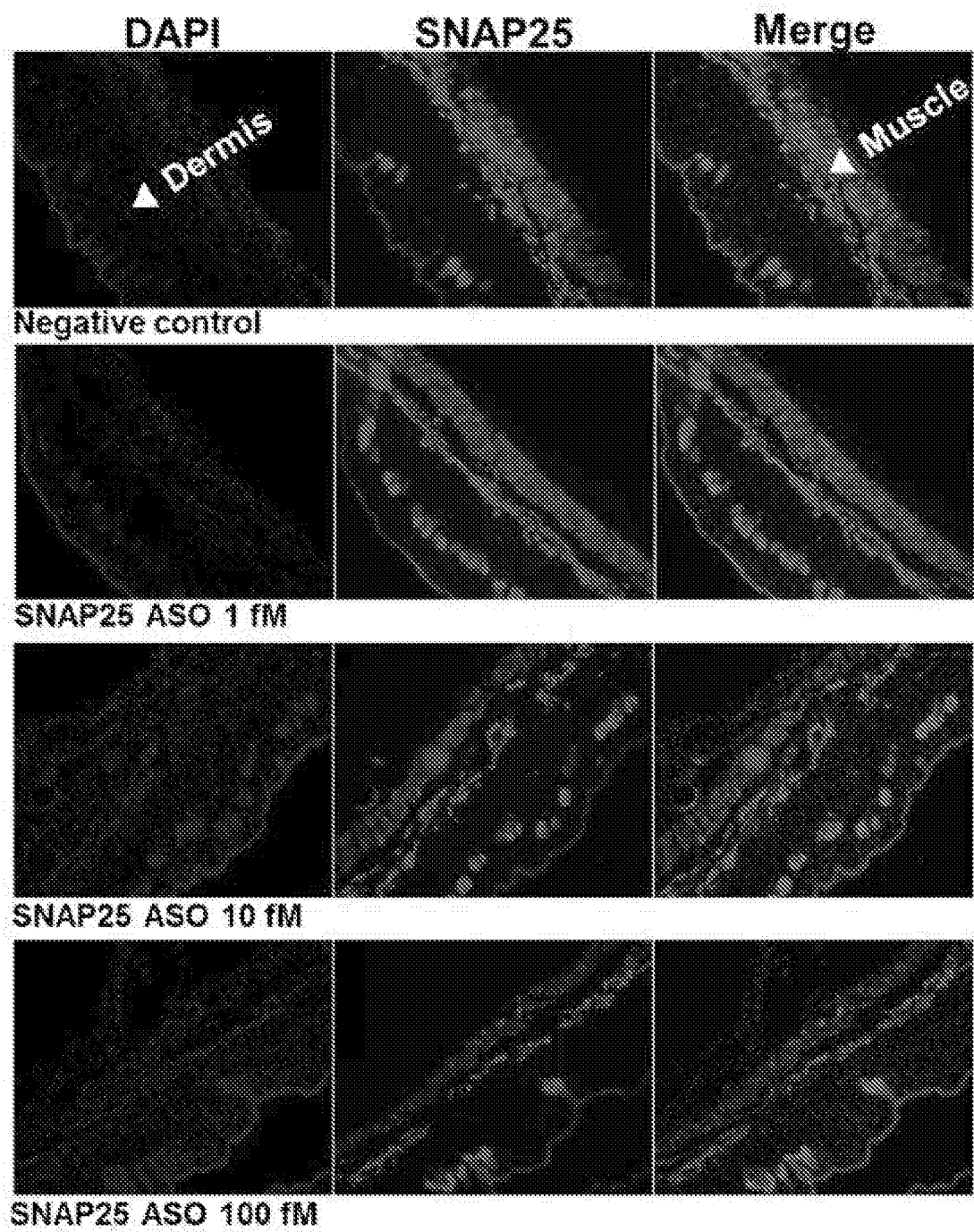


Figure 52A

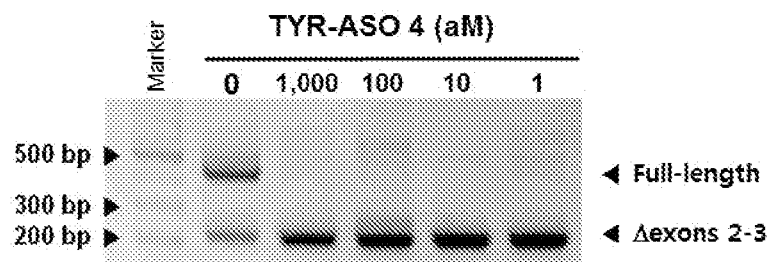


Figure 52B

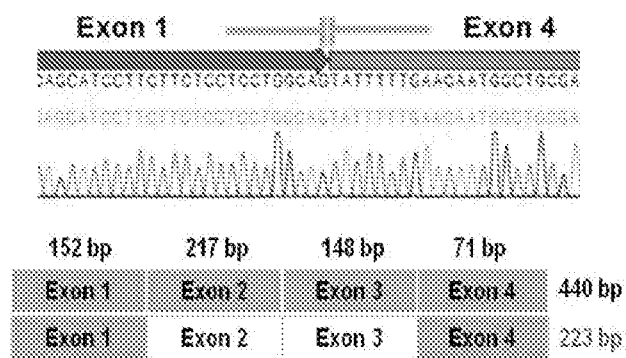


Figure 52C

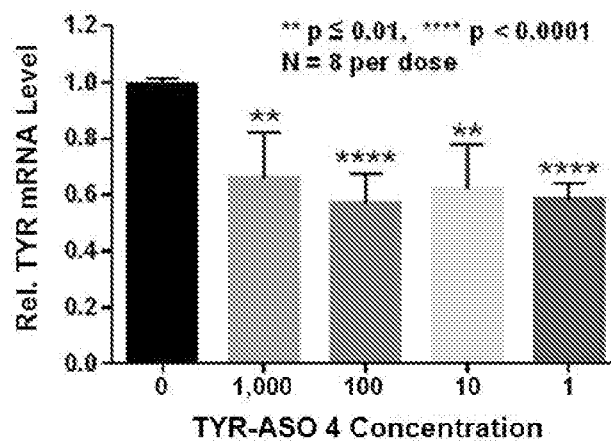


Figure 53A

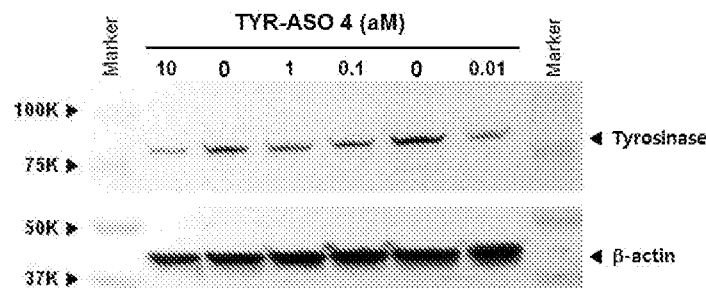


Figure 53B

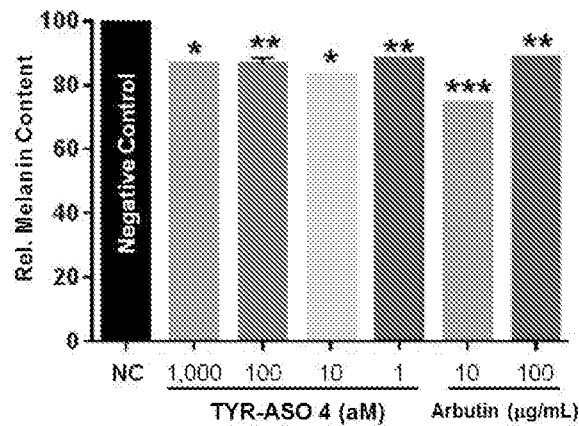


Figure 53C

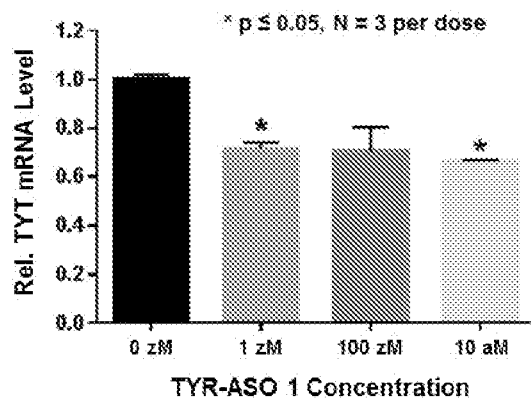


Figure 54A

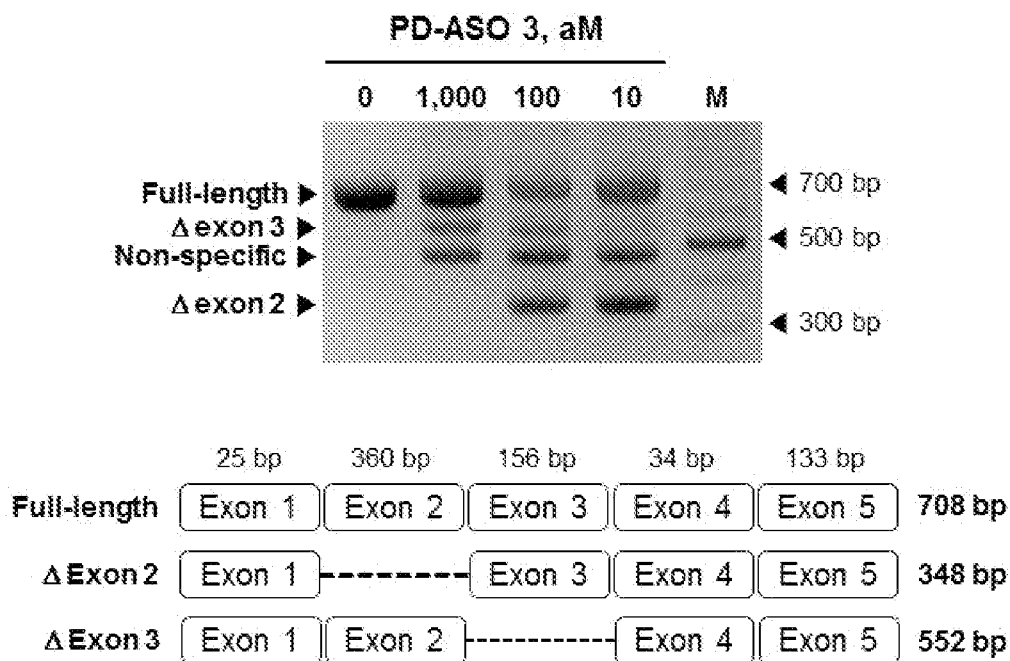


Figure 54B

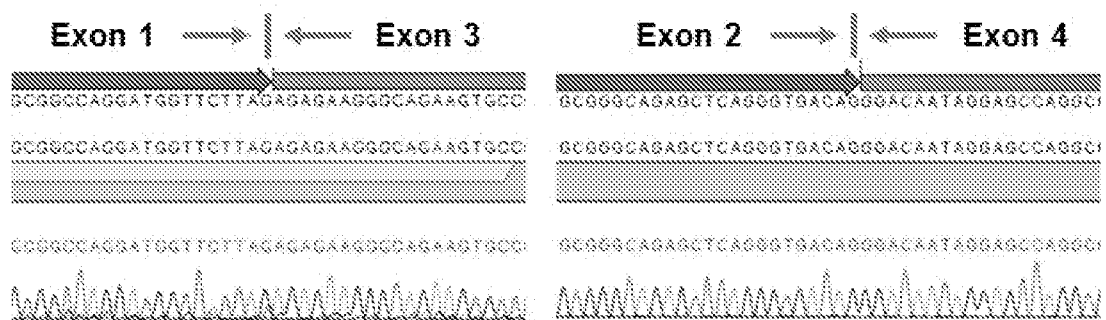


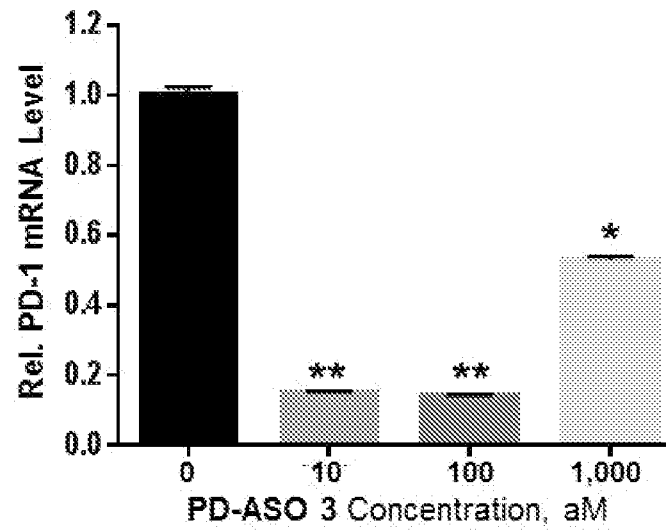
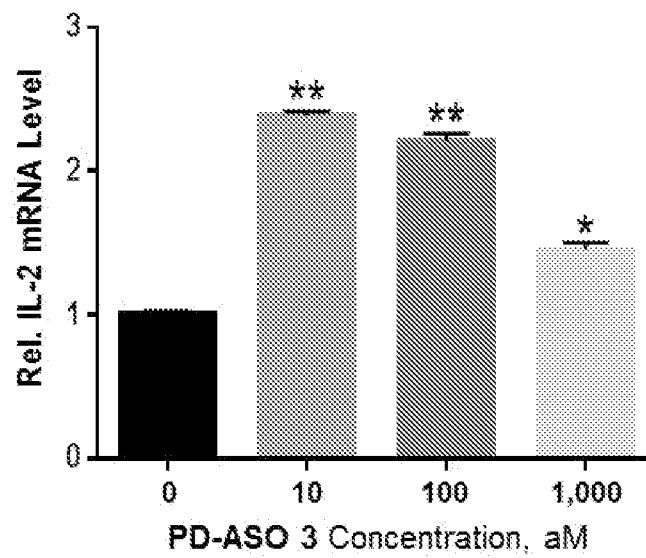
Figure 55A**Figure 55B**

Figure 56A

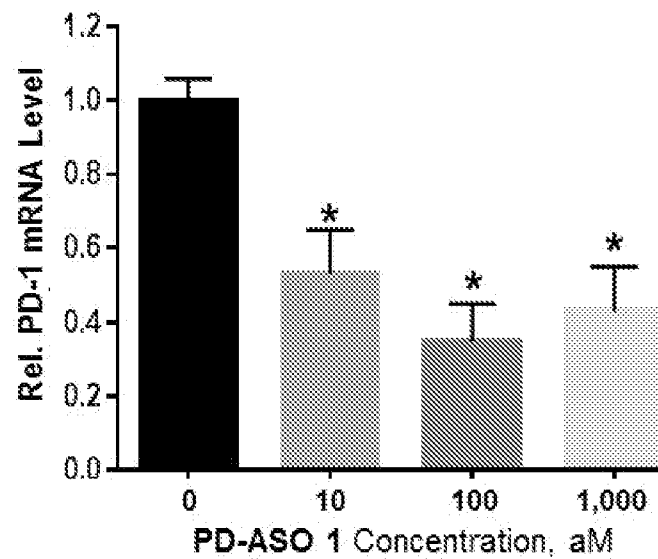


Figure 56B

