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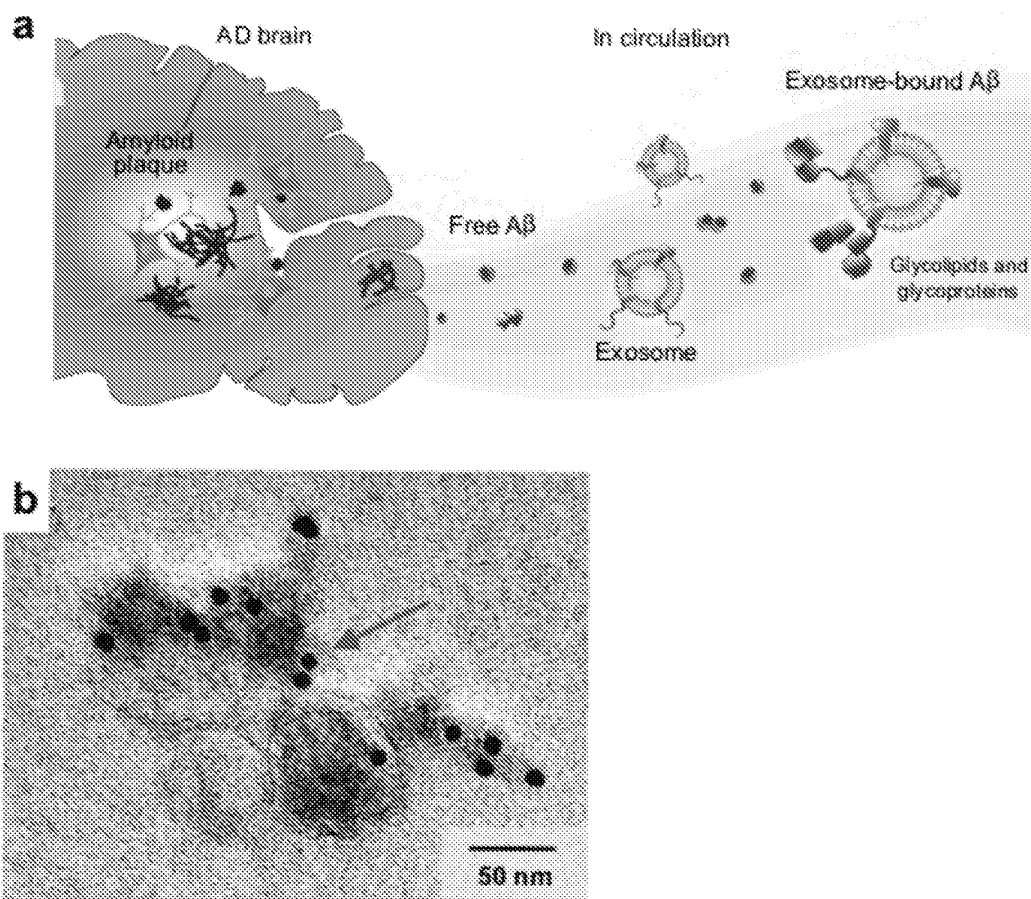


FIGURE 1(a)-(b)

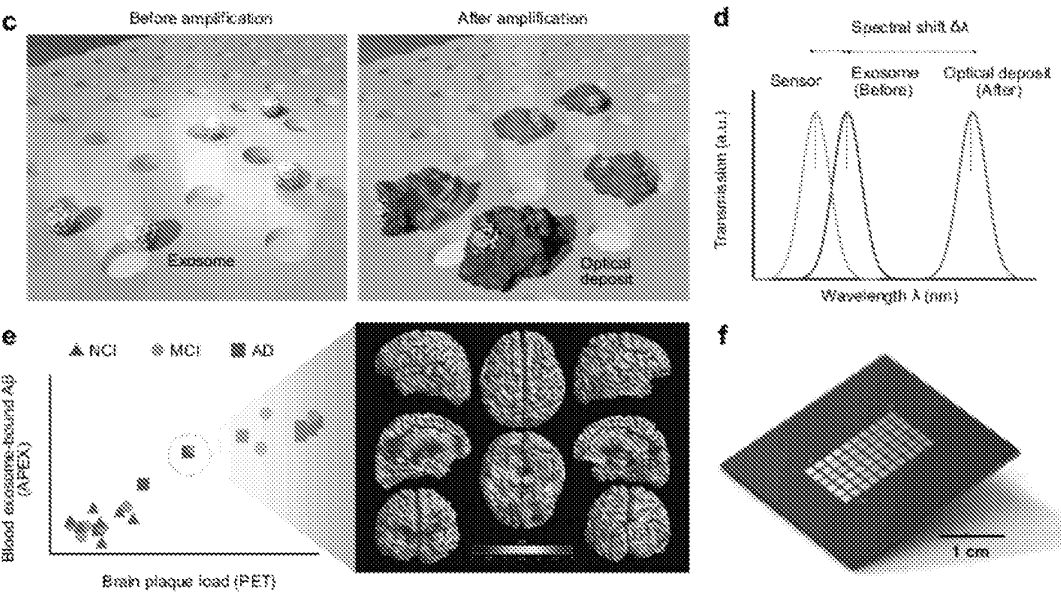


FIGURE 1(c)-(f)

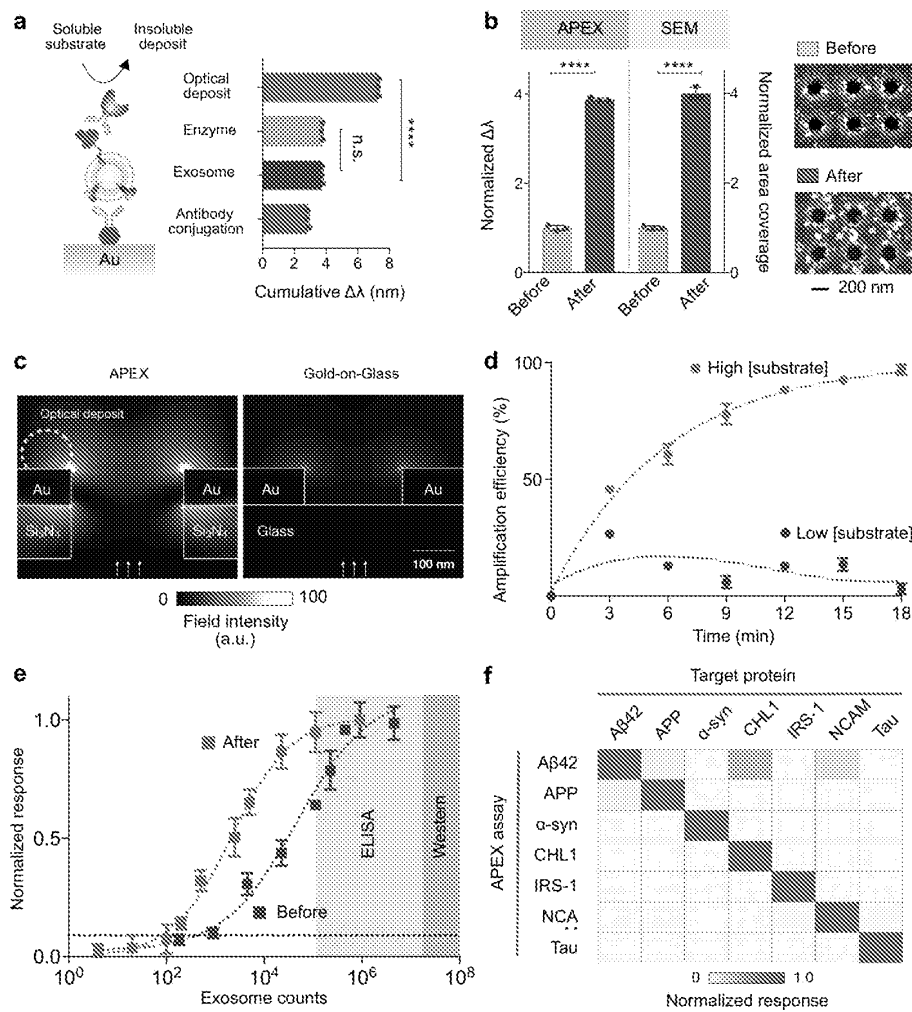


FIGURE 2

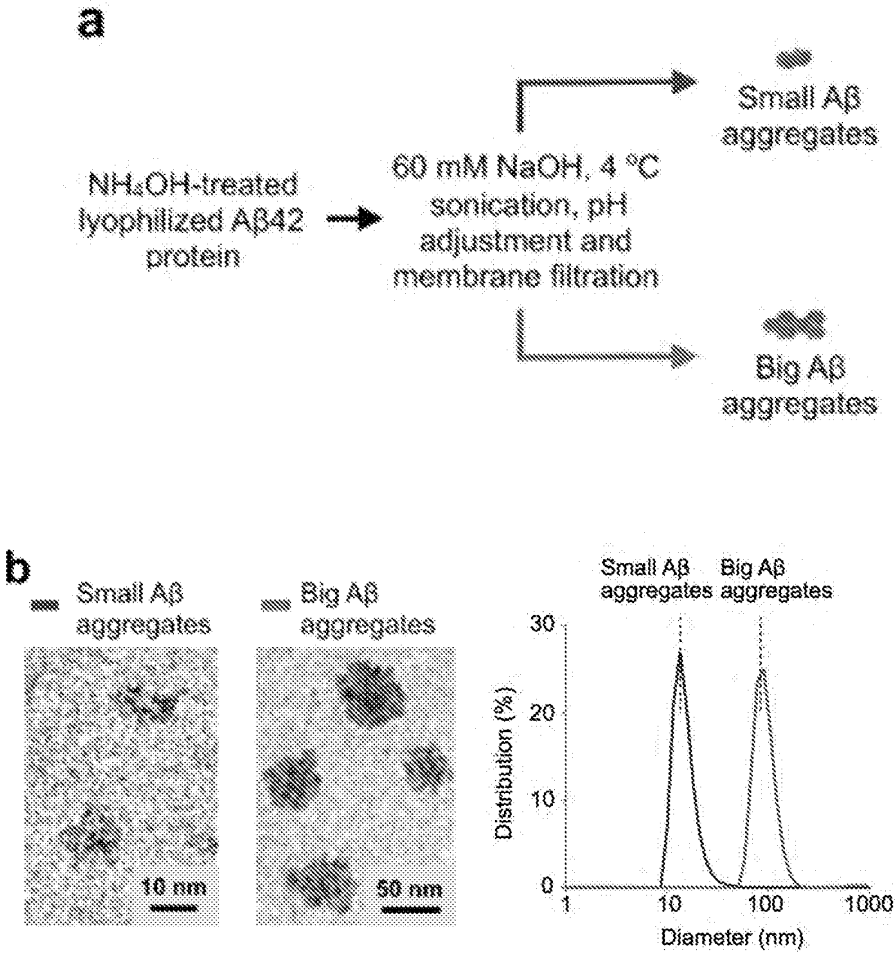


FIGURE 3(a)-(b)

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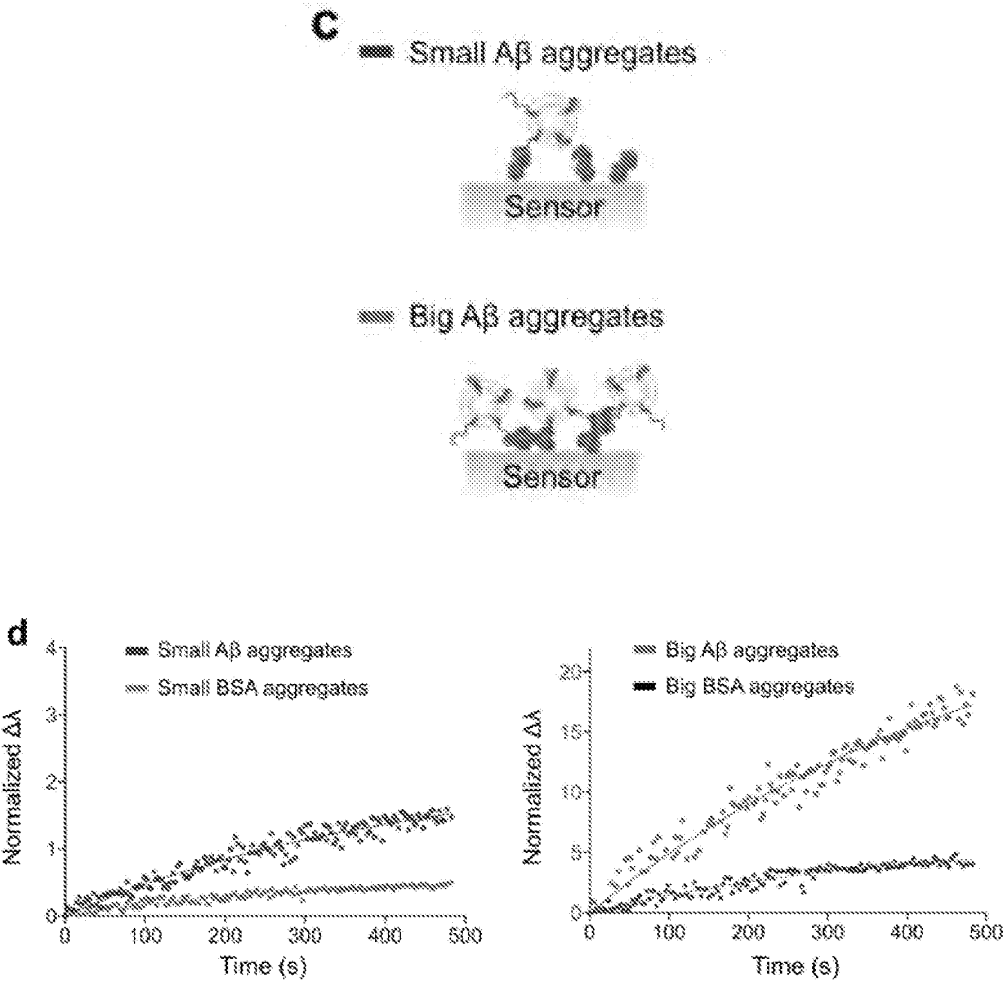


FIGURE 3(c)-(d)

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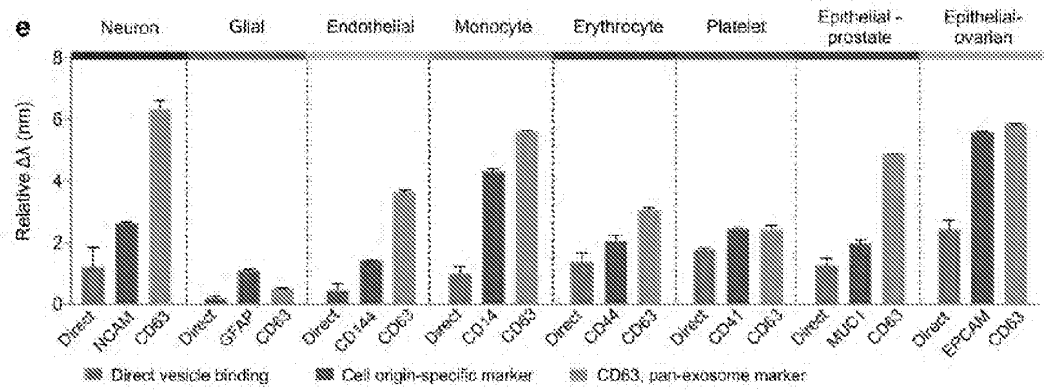


FIGURE 3(e)

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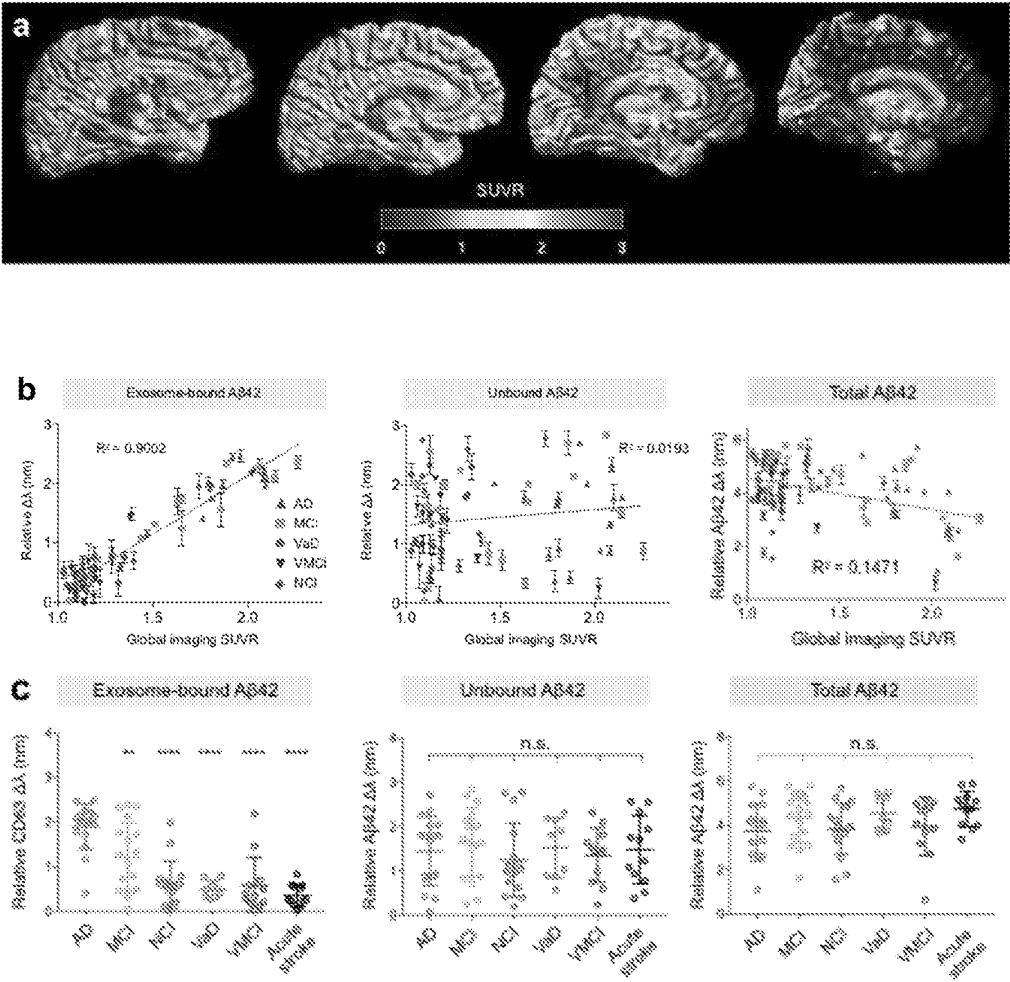


FIGURE 4

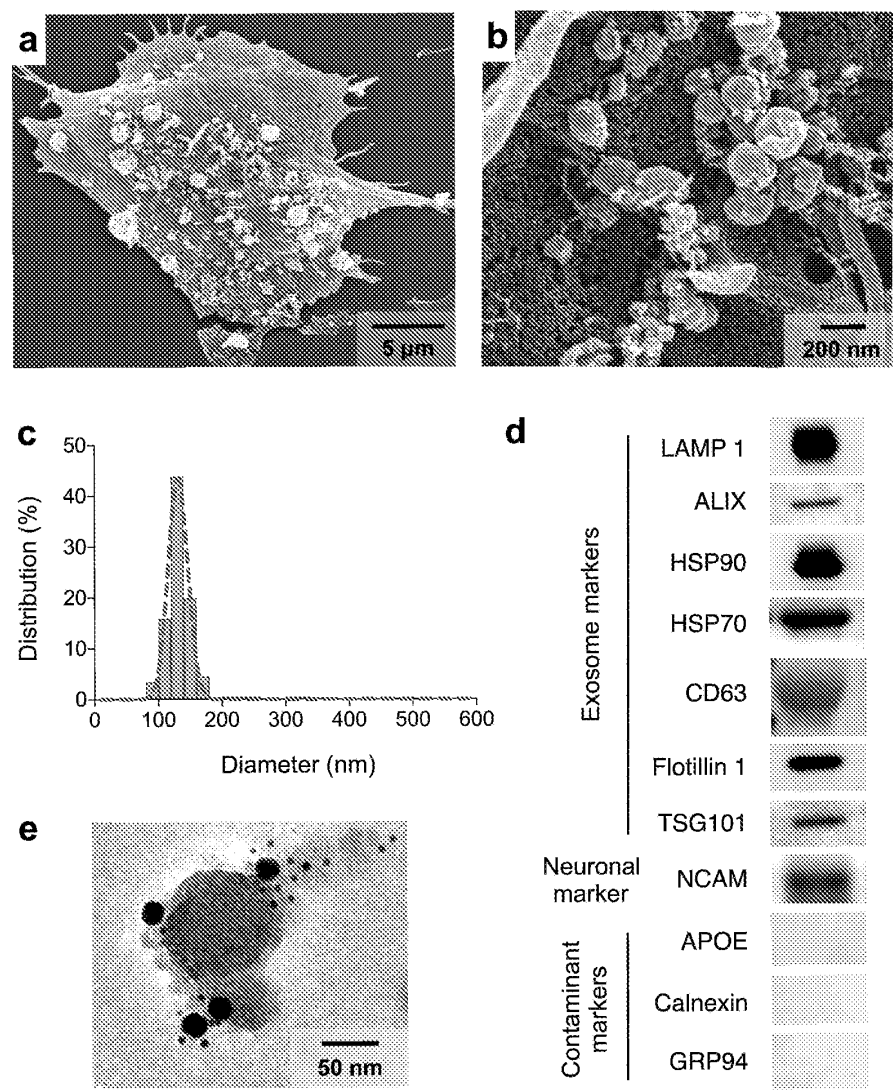


FIGURE 5

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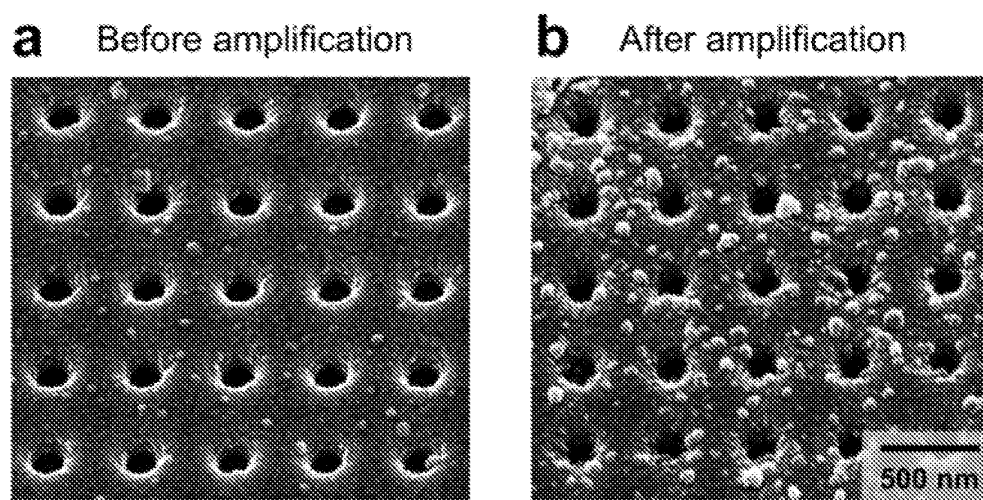


FIGURE 6

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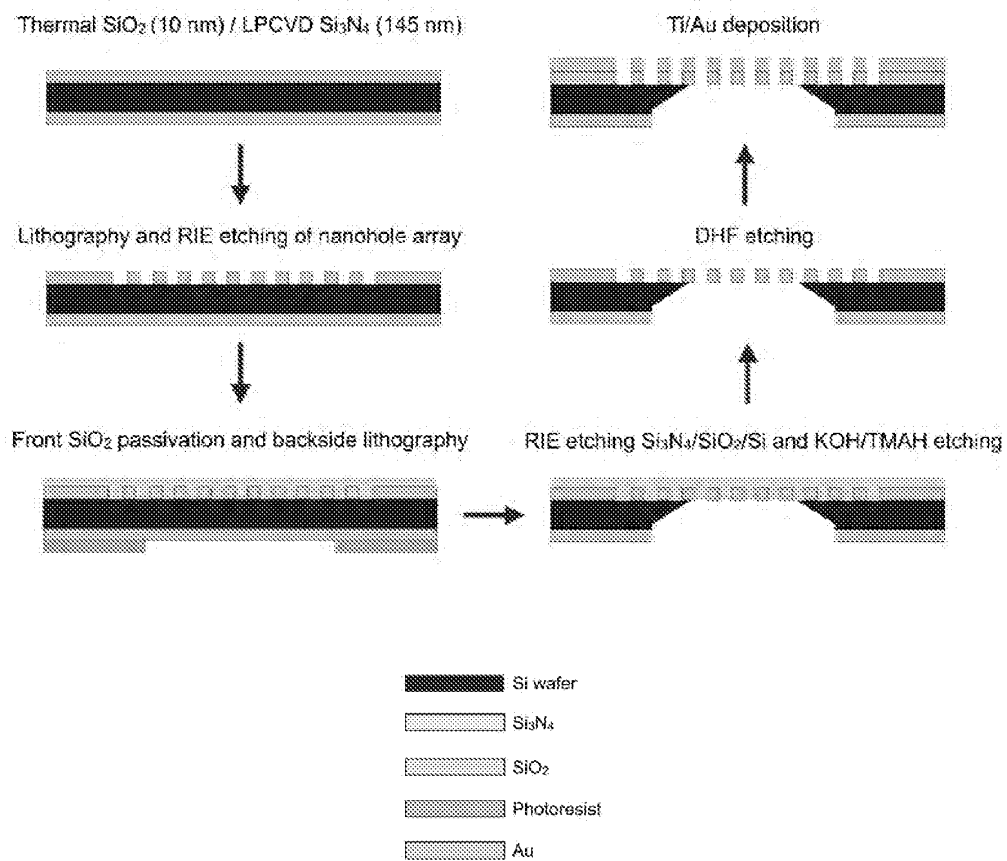


FIGURE 7

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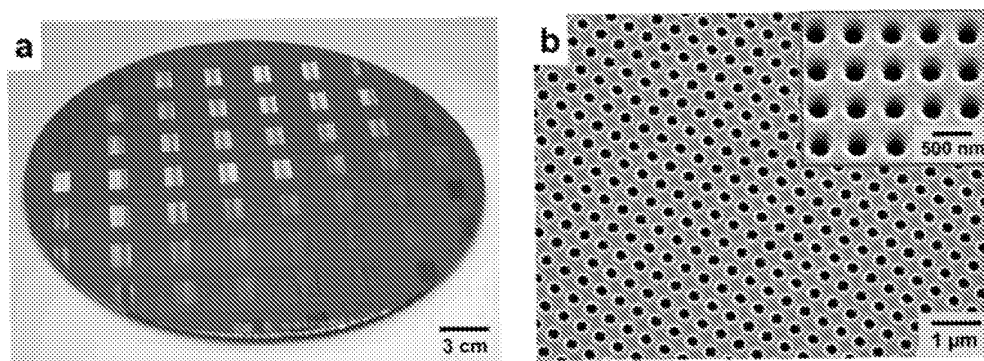


FIGURE 8

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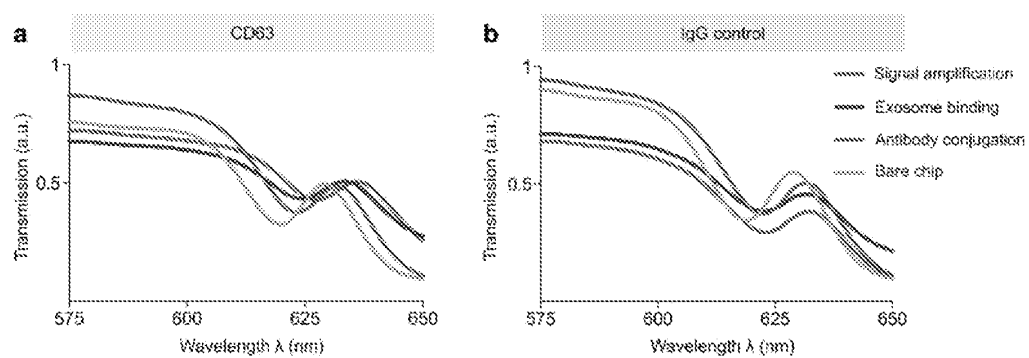


FIGURE 9

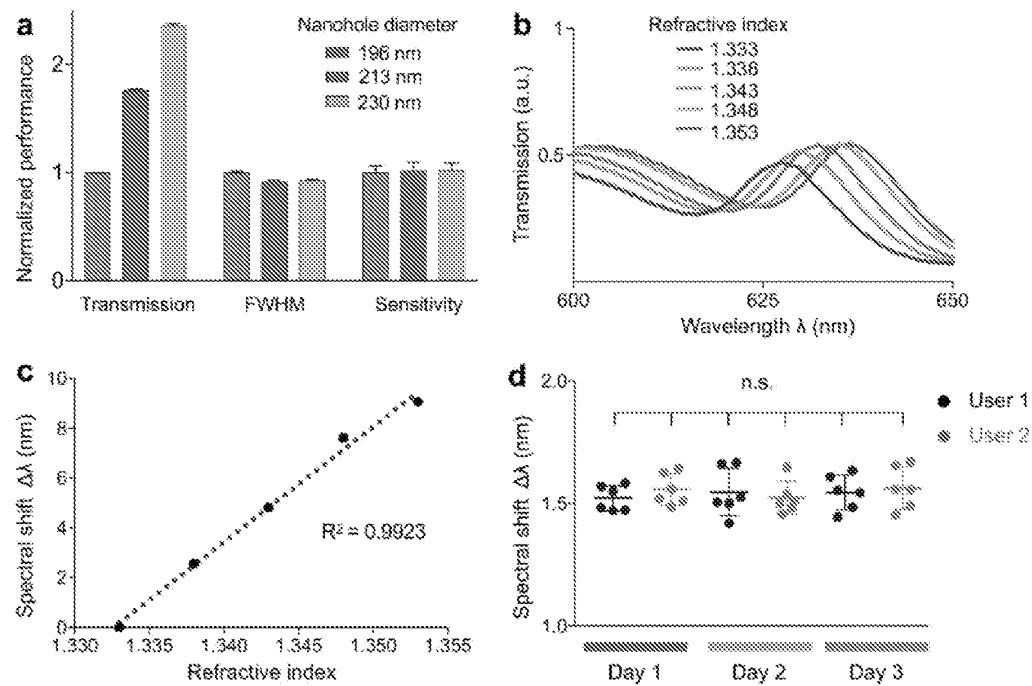


FIGURE 10

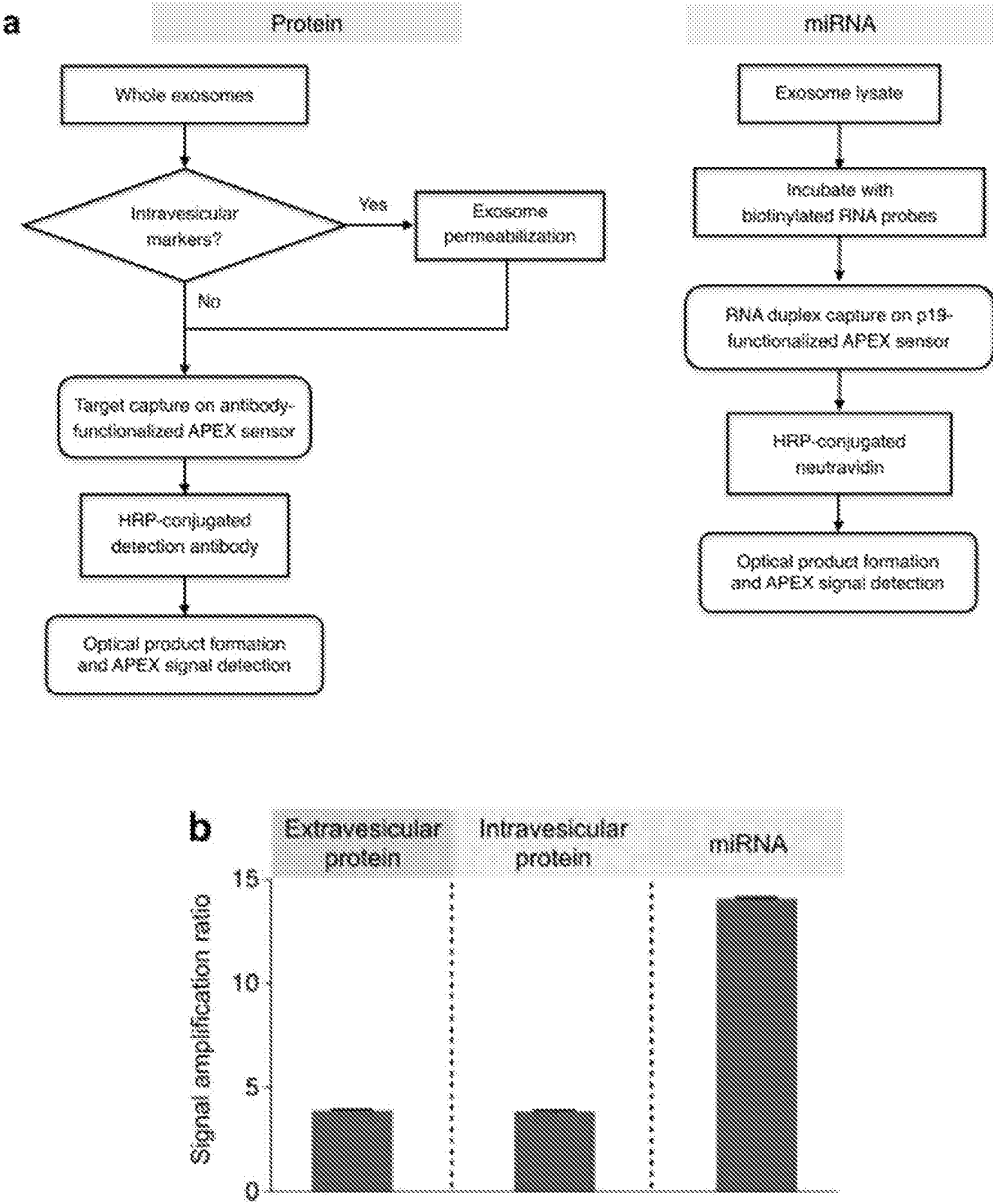


FIGURE 11

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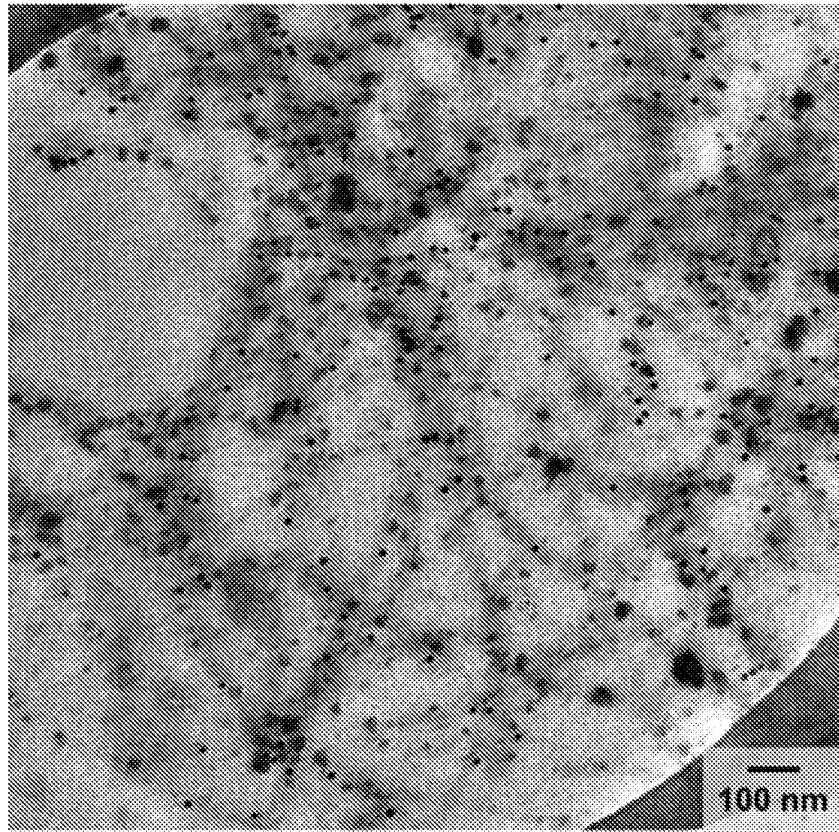
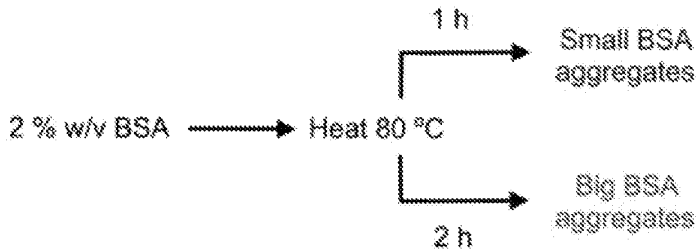


FIGURE 12

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a



b

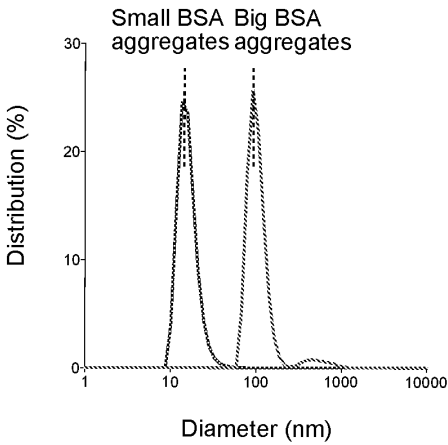


FIGURE 13

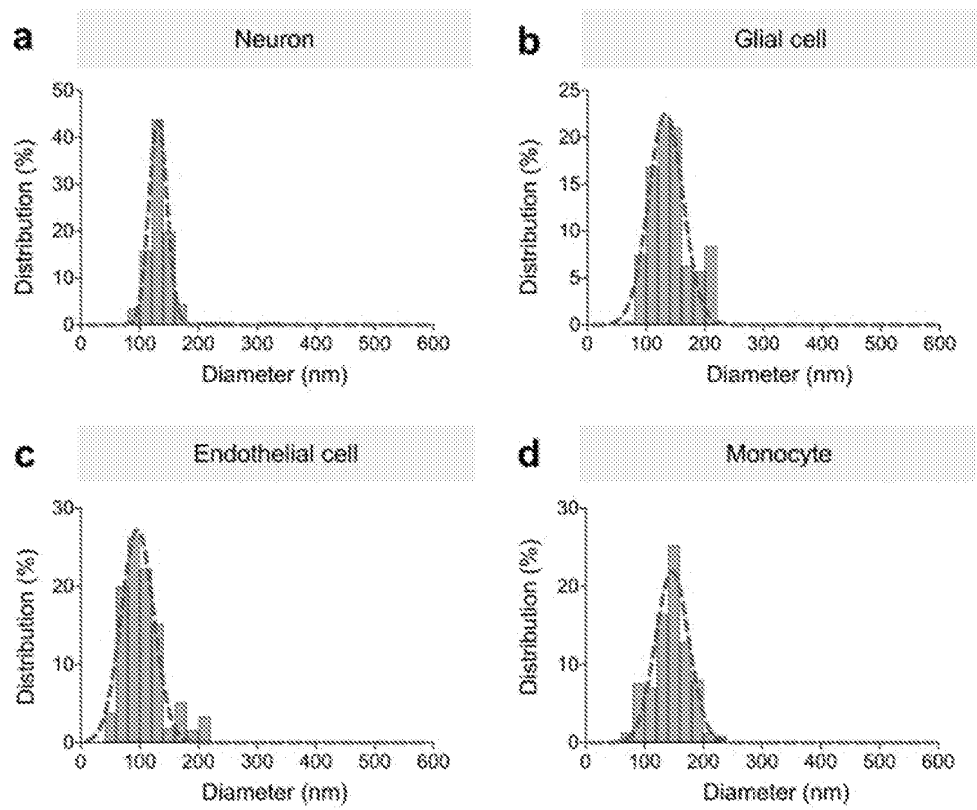


FIGURE 14 (a)-(d)

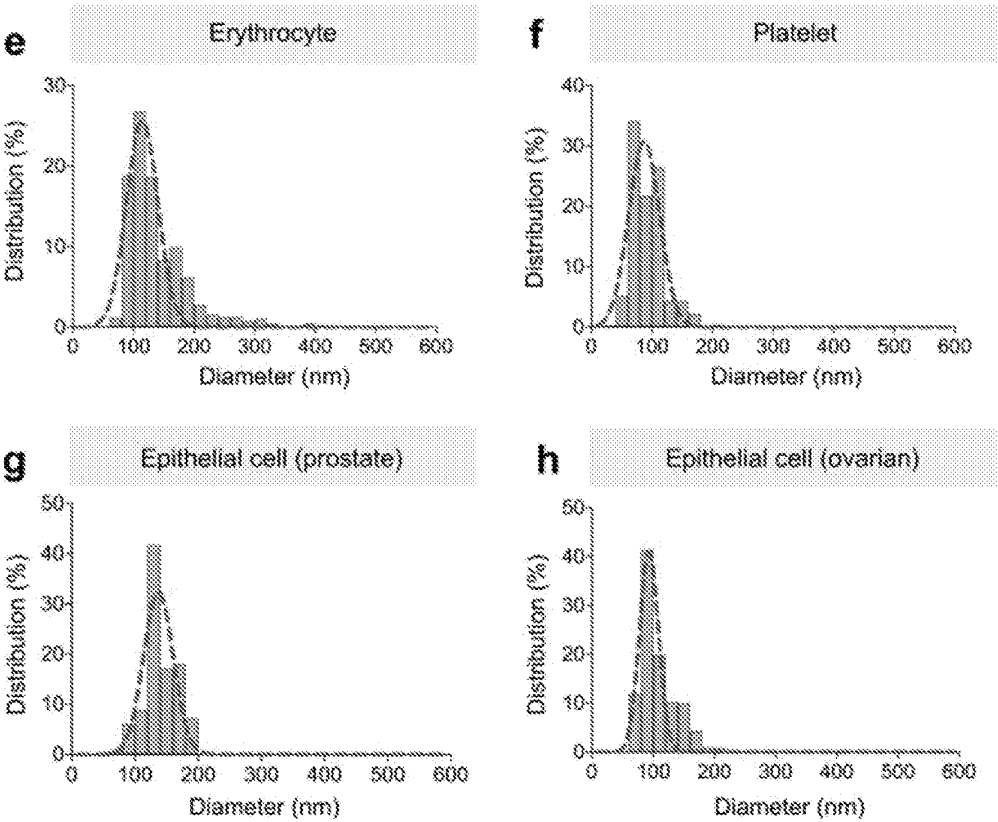


FIGURE 14 (e)-(h)

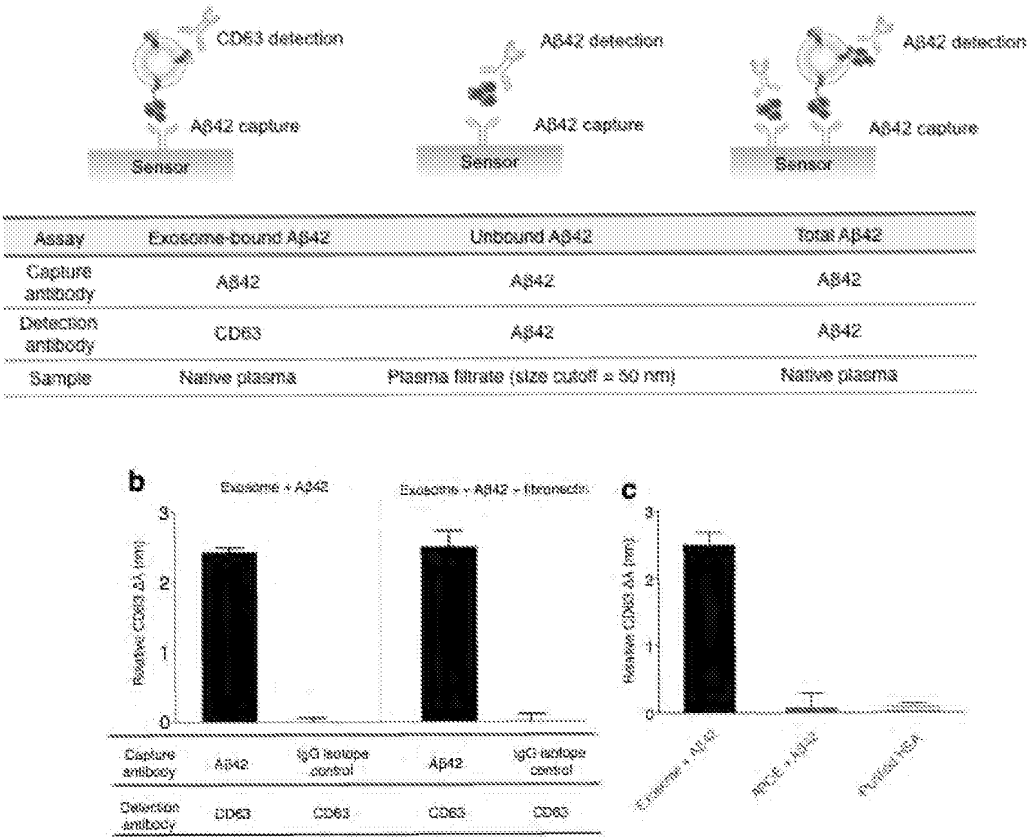


FIGURE 15

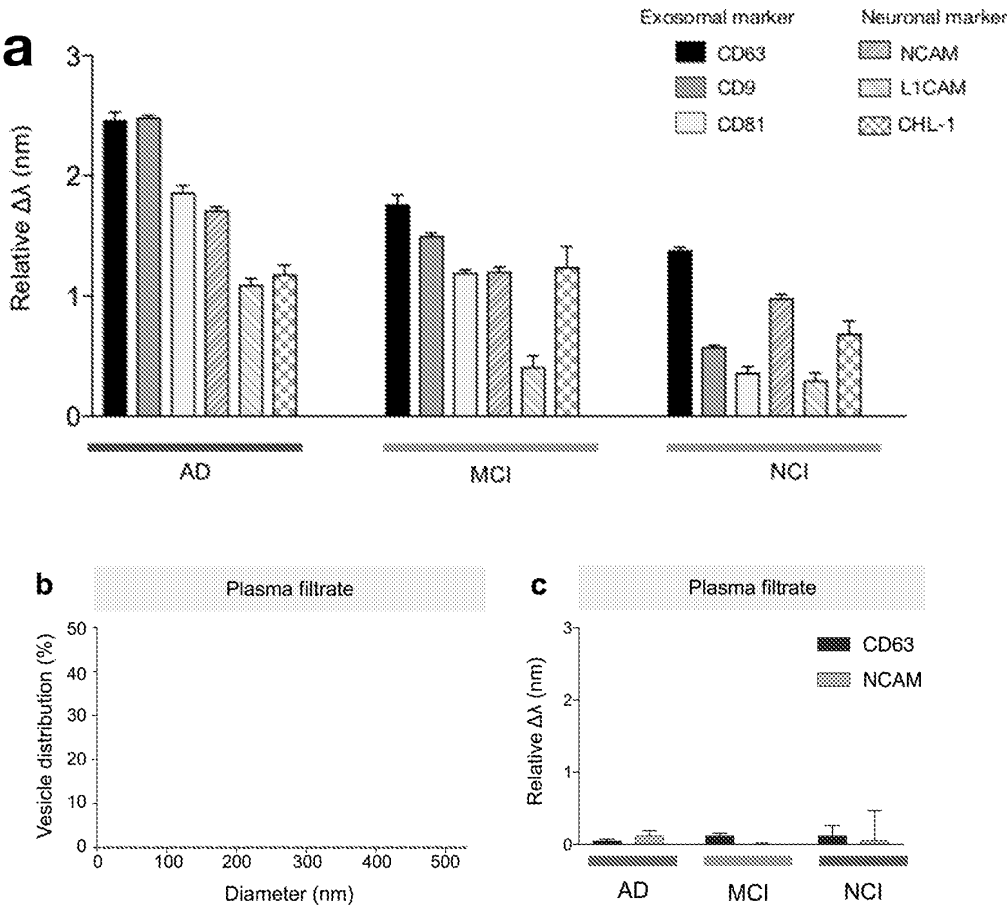


FIGURE 16

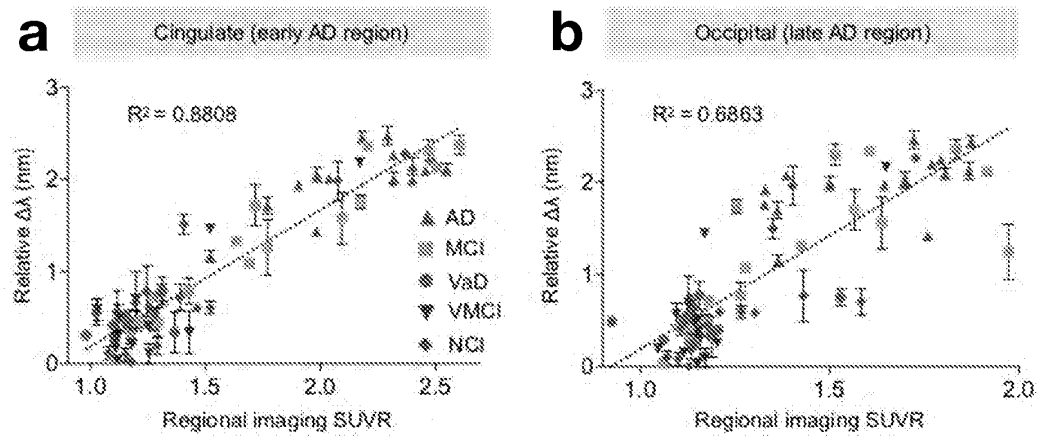


FIGURE 17

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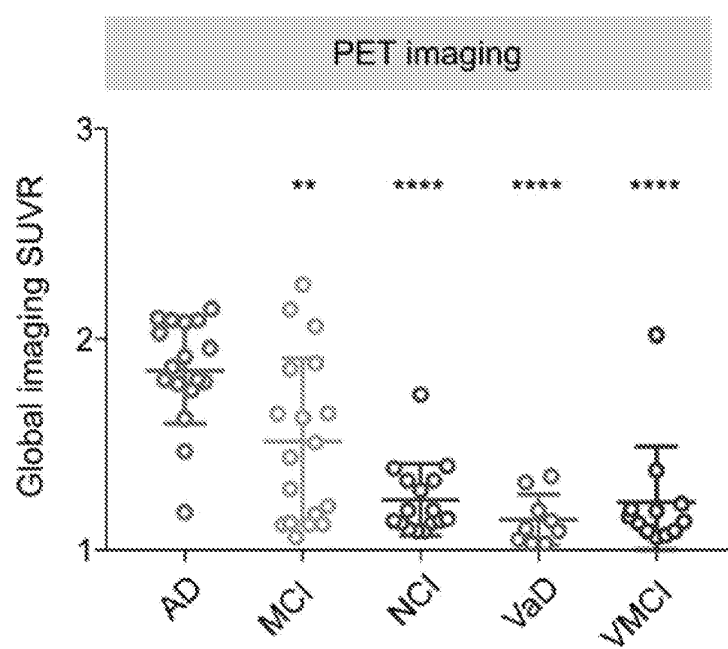


FIGURE 18

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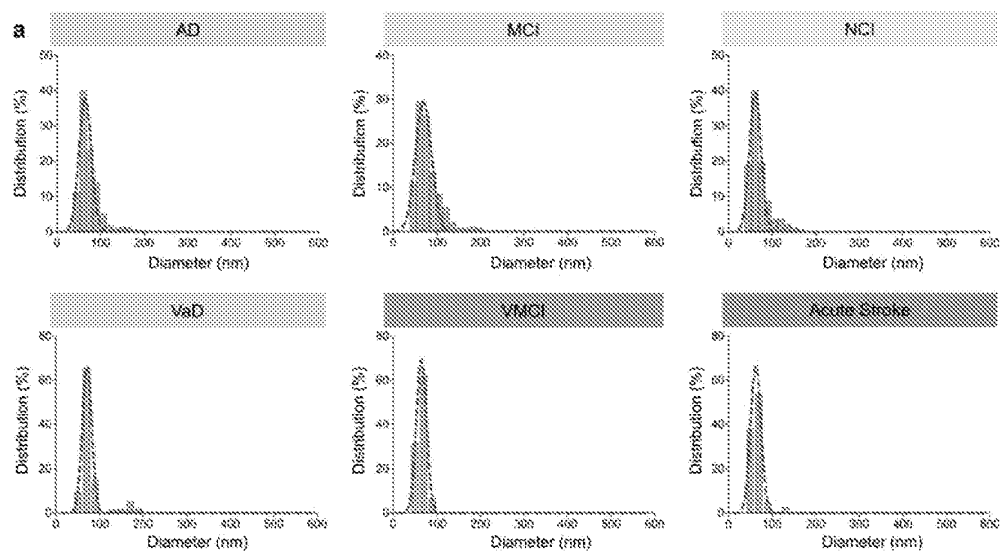


Figure 19 (a)

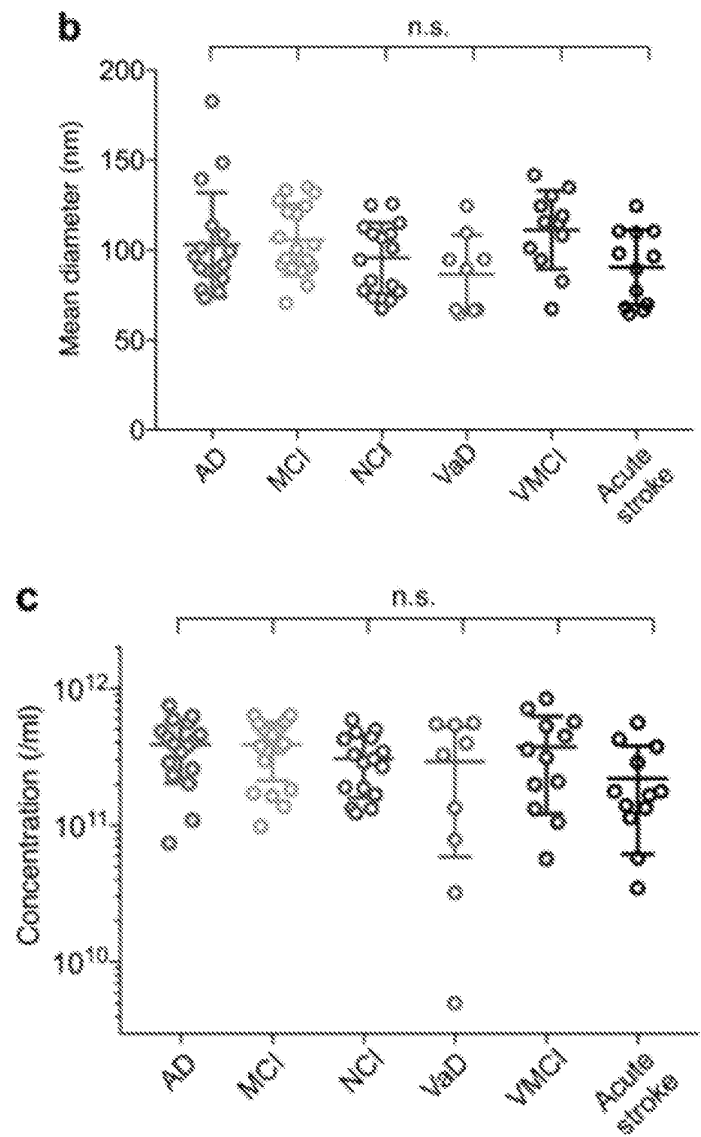
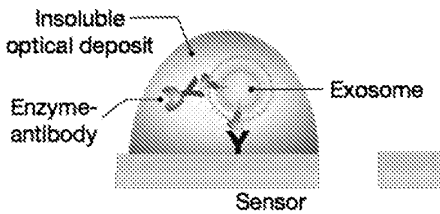
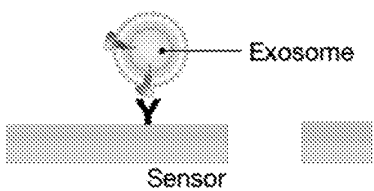
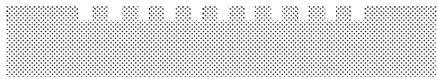


Figure 19(b)-(c)

APEX		Other SPR platforms	
Assay technology	 Insoluble optical deposit Enzyme-antibody Exosome Sensor • Immuno-captures exosomes and enzymatically deposits a localized, insoluble optical product on sensor-bound exosomes • Insoluble deposit forms only when multiple targets are co-localized in exosomes • Insoluble deposit changes the refractive index and amplifies SPR detection signal • Limit of detection ~ 200 exosomes	 Exosome Sensor • Immuno-captures exosomes and detects via exosome-induced changes in refractive index • Limit of detection ~ 3000 exosomes	
Possible targets	• Detects diverse exosome proteins (extravesicular and intravesicular) and RNA targets • Detects exosomal target co-localization (e.g., Aβ42+ CD63+)	• Detects exosome extravesicular proteins • Cannot detect target co-localization	
Device design	 Au Si₃N₄ Si wafer • Gold (Au) nanoholes suspended on a patterned silicon nitride (Si₃N₄) membrane • Double-layered nanostructure	 Au Glass • Gold (Au) nanoholes on a uniform glass substrate • Gold-on-glass	

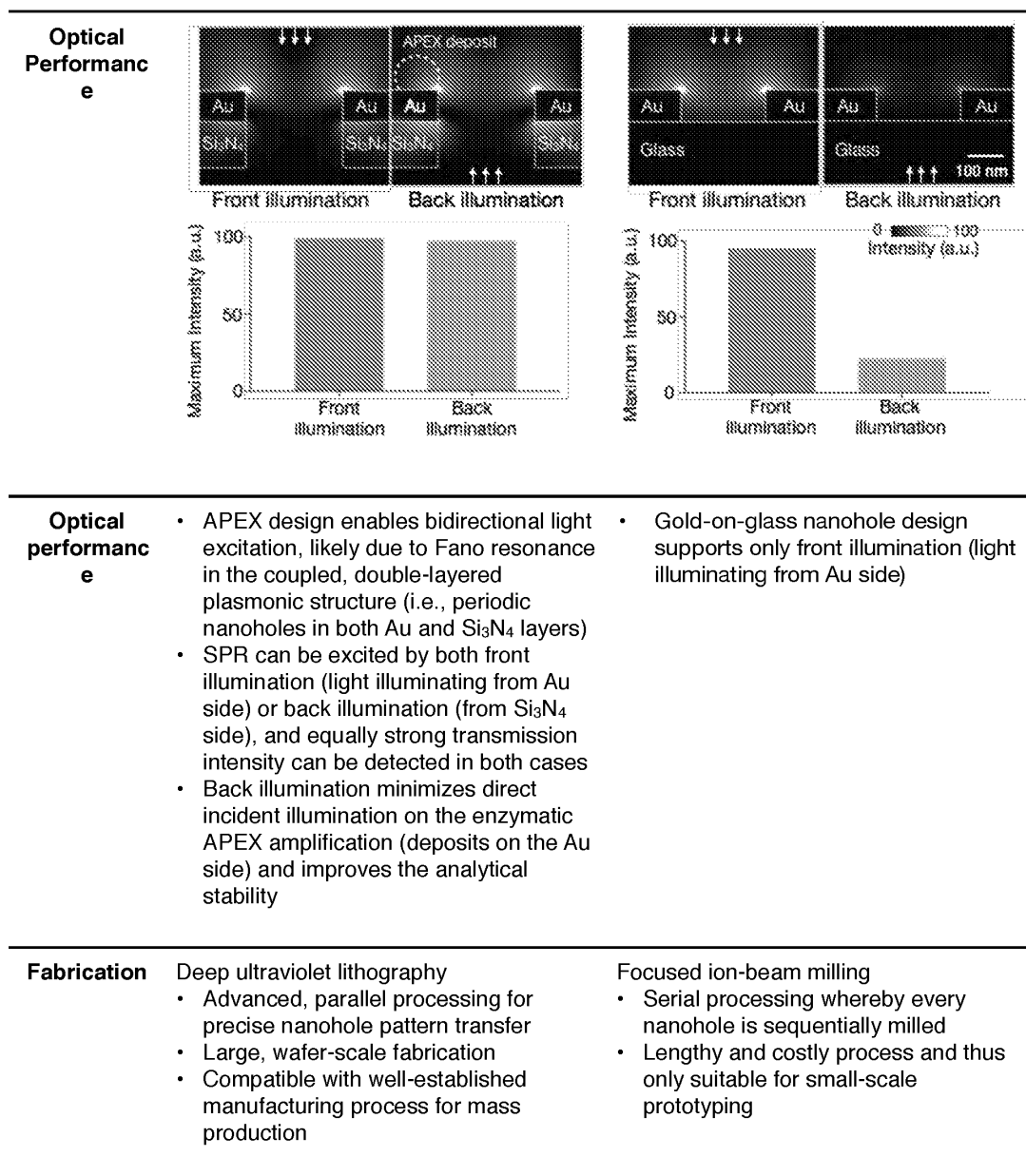


Figure 20

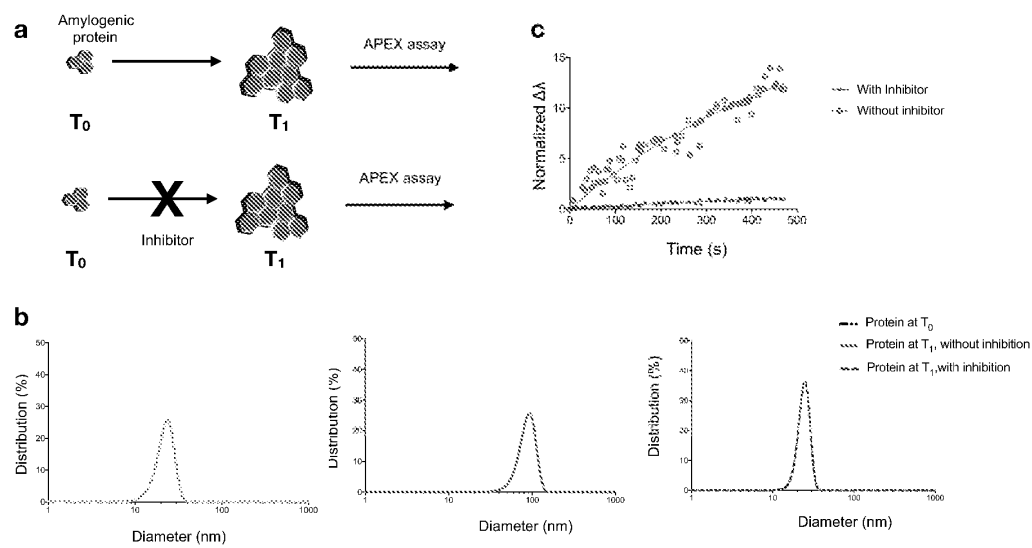


FIGURE 21

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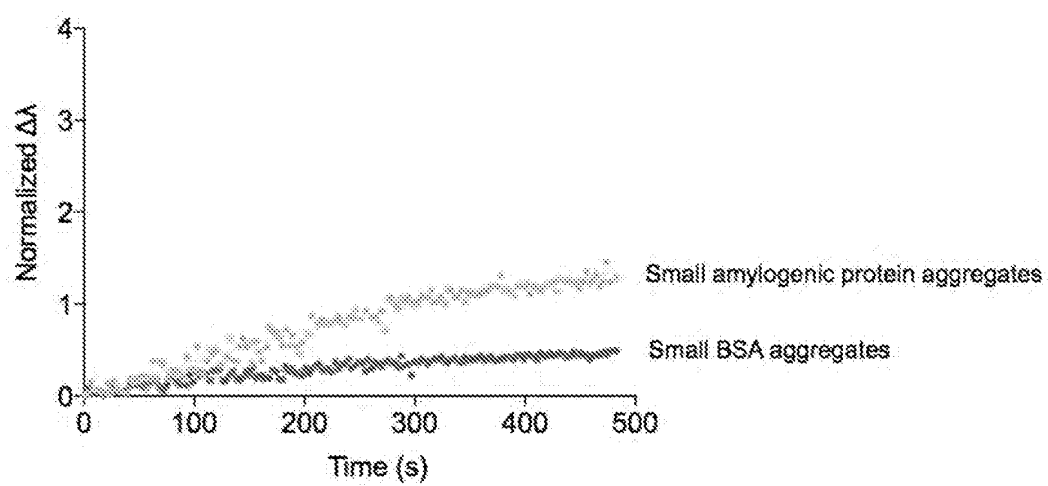


FIGURE 22

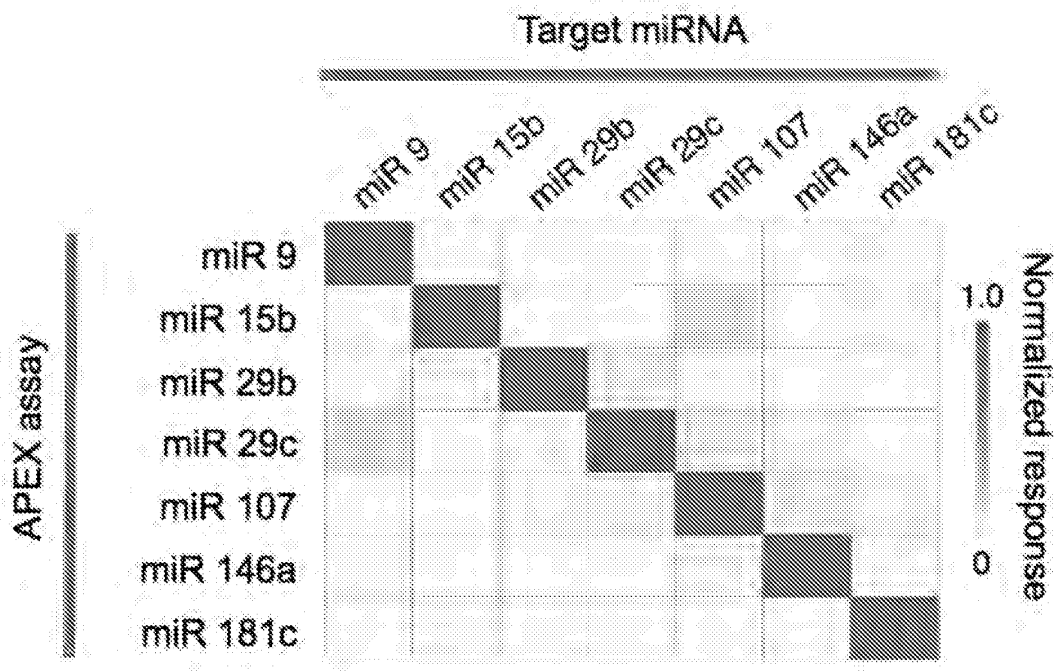


FIGURE 23