

**Submitted to MethodsX**

**Supporting Information**

**Albuminuria detection using graphene oxide-mediated fluorescence quenching aptasensor**

Wireeya Chawjiraphan<sup>a</sup>, Chayachon Apiwat<sup>a,c</sup>, Khoonsake Segkhoonthod<sup>a</sup>, Kiatnida Treerattrakoon<sup>a,f</sup>, Preedee Pinpradup<sup>a</sup>, Nuankanya Sathirapongsasuti<sup>b</sup>, Prapasiri Pongprayoon<sup>c,d</sup>, Patraporn Luksirikul<sup>c,d</sup>, Patcharee Isarankura-Na-Ayudhya<sup>e</sup>, Deanpen Japrun<sup>a\*</sup>

<sup>a</sup>National Nanotechnology Center (NANOTEC), National Science and Technology Development Agency (NSTDA), Thailand Science Park, Pathumthani, Thailand

<sup>b</sup>Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

<sup>c</sup>Department of Chemistry, Faculty of Science, Kasetsart University, Bangkok, Thailand

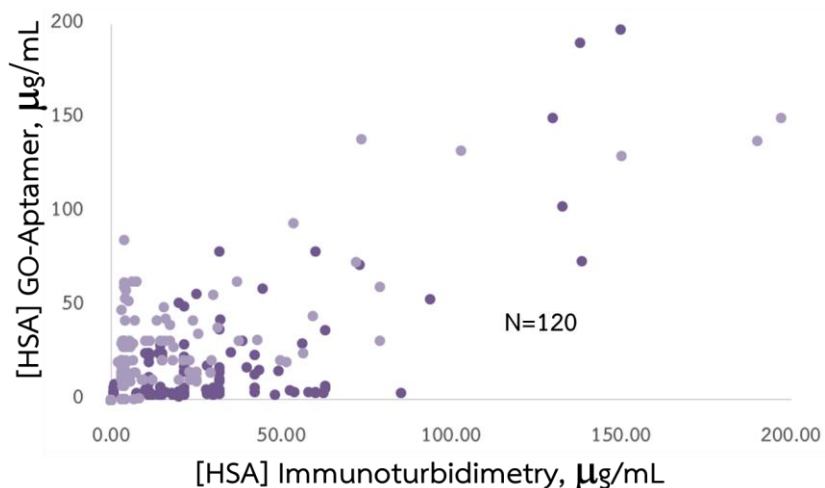
<sup>d</sup>Center for Advanced Studies in Nanotechnology for Chemical, Food and Agricultural Industries, KU Institute for Advanced Studies, Kasetsart University, Bangkok, Thailand.

<sup>e</sup>Department of Medical Technology, Faculty of Allied Health Science, Thammasat University, Pathumthani, Thailand

<sup>f</sup>Department of Pure and Applied Chemistry, Technology and Innovation Centre, University of Strathclyde, Glasgow, United Kingdom

\*Corresponding author: deanpen@nanotec.or.th

Phone number: +66 2564 6985



**Figure S1:** Correlation of the HSA concentrations (N=120) measured by graphene oxide-mediated fluorescence quenching aptasensor (y-axis) with those obtained by the standard methods, immunoturbidimetry (x-axis).

**Table S1:** Human Serum Albumin concentration ( $\mu\text{g/mL}$ ) analyzed by our developed method comparing with immunotubidimetry method (Standard method used in the hospital)

Urine sample number	Human serum albumin concentration ( $\mu\text{g/mL}$ )		Patient information
	Our developed method	Immunotubidimetry method	
1	11.01	20	Healthy control (No DM)
2	1.00	8.3	Healthy control (No DM)
3	11.01	12.2	Healthy control (No DM)
4	0.64	6.6	Healthy control (No DM)
5	0.64	3	Healthy control (No DM)
6	10.00	5.7	Healthy control (No DM)
7	21.37	15	Healthy control (No DM)
8	21.37	18	Healthy control (No DM)
9	14.46	29.2	Healthy control (No DM)
10	31.74	10	Healthy control (No DM)
11	15.00	3	Healthy control (No DM)

<b>12</b>	56.22	30	Healthy control (No DM)
<b>13</b>	14.00	25	Healthy control (No DM)
<b>14</b>	15.00	23	Healthy control (No DM)
<b>15</b>	12.00	3	Healthy control (No DM)
<b>16</b>	31.74	17.2	Healthy control (No DM)
<b>17</b>	11.01	4.4	Healthy control (No DM)
<b>18</b>	42.11	13.4	Healthy control (No DM)
<b>19</b>	14.46	7.2	Healthy control (No DM)
<b>20</b>	28.00	5.6	Healthy control (No DM)
<b>21</b>	21.37	15	Healthy control (No DM)
<b>22</b>	14.46	6.7	Healthy control (No DM)
<b>23</b>	10.00	25	Healthy control (No DM)
<b>24</b>	11.01	25	Healthy control (No DM)
<b>25</b>	11.01	8.9	Healthy control (No DM)
<b>26</b>	21.37	21.3	Healthy control (No DM)
<b>27</b>	31.74	5.4	Healthy control (No DM)
<b>28</b>	49.22	15.4	Healthy control (No DM)
<b>29</b>	11.01	4.4	Healthy control (No DM)
<b>30</b>	20.00	3	Healthy control (No DM)
<b>31</b>	21.37	6.5	Healthy control (No DM)
<b>32</b>	11.01	4.7	Healthy control (No DM)
<b>33</b>	31.74	15.7	Healthy control (No DM)
<b>34</b>	28.29	18.4	Healthy control (No DM)
<b>35</b>	30.00	6.5	Healthy control (No DM)
<b>36</b>	20.00	4.6	Healthy control (No DM)

<b>37</b>	43.40	16	Healthy control (No DM)
<b>38</b>	21.37	3	Healthy control (No DM)
<b>39</b>	31.74	3.4	Healthy control (No DM)
<b>40</b>	31.74	3.8	Healthy control (No DM)
<b>41</b>	85.35	3.9	DM + Normal Kidney
<b>42</b>	0.64	3	DM + Normal Kidney
<b>43</b>	30.00	3	DM + Normal Kidney
<b>44</b>	31.74	37.6	DM + Normal Kidney
<b>45</b>	20.00	3	DM + Normal Kidney
<b>46</b>	28.29	4.4	DM + Normal Kidney
<b>47</b>	7.55	3.4	DM + Normal Kidney
<b>48</b>	58.16	4.2	DM + Normal Kidney
<b>49</b>	15.00	25	DM + Normal Kidney
<b>50</b>	42.11	6.8	DM + Normal Kidney
<b>51</b>	21.37	29.6	DM + Normal Kidney
<b>52</b>	11.01	4.9	DM + Normal Kidney
<b>53</b>	20.00	3	DM + Normal Kidney
<b>54</b>	31.74	14.5	DM + Normal Kidney
<b>55</b>	52.48	5.1	DM + Normal Kidney
<b>56</b>	11.01	25	DM + Normal Kidney
<b>57</b>	11.01	23.9	DM + Normal Kidney
<b>58</b>	11.01	3	Non DM+ Normal CKD
<b>59</b>	93.94	53.6	Non DM+ Normal CKD
<b>60</b>	31.74	79	Non DM+ Normal CKD
<b>61</b>	73.21	72	Non DM+ Normal CKD
<b>62</b>	138.56	73.7	Non DM+ Normal CKD
<b>63</b>	343.24	113.3	Non DM+ Normal CKD
<b>64</b>	20.00	51.6	Non DM+ Normal CKD
<b>65</b>	21.37	3	Non DM+ Normal CKD
<b>66</b>	60.00	79.1	Non DM+ Normal CKD

<b>67</b>	40.00	17.2	Non DM+ Normal CKD
<b>68</b>	44.56	59.3	Non DM+ Normal CKD
<b>69</b>	32.00	42.9	Non DM+ Normal CKD
<b>70</b>	62.84	7.5	Non DM+ Normal CKD
<b>71</b>	20.00	3	Non DM+ Normal CKD
<b>72</b>	11.01	3	Non DM+ Normal CKD
<b>73</b>	31.74	11.3	Non DM+ Normal CKD
<b>74</b>	42.11	24.1	Non DM+ Normal CKD
<b>75</b>	21.37	23.1	Non DM+ Normal CKD
<b>76</b>	38.65	31.3	Non DM+ Normal CKD
<b>77</b>	35.20	25.6	Non DM+ Normal CKD
<b>78</b>	62.84	6.1	Non DM+ Normal CKD
<b>79</b>	21.37	49.8	Non DM+ Normal CKD
<b>80</b>	48.06	3	Non DM+ Normal CKD
<b>81</b>	11.01	9.5	Non DM+ Normal CKD
<b>82</b>	11.01	22.9	Non DM+ Normal CKD
<b>83</b>	31.74	3.9	Non DM+ Normal CKD
<b>84</b>	42.11	4.1	Non DM+ Normal CKD
<b>85</b>	21.37	4.2	Non DM+ Normal CKD
<b>86</b>	60.10	4.1	Non DM+ Normal CKD
<b>87</b>	0.64	4.1	Non DM+ Normal CKD
<b>88</b>	28.29	3.5	Non DM+ Normal CKD
<b>89</b>	60.00	3.9	Non DM+ Normal CKD
<b>90</b>	53.89	4	Non DM+ Normal CKD
<b>91</b>	0.64	4	Non DM+ Normal CKD

<b>92</b>	0.64	3.6	Non DM+ Normal CKD
<b>93</b>	0.64	3.4	Non DM+ Normal CKD
<b>94</b>	11.01	3.9	Non DM+ Normal CKD
<b>95</b>	0.64	3.4	Non DM+ Normal CKD
<b>96</b>	0.64	3.8	Non DM+ Normal CKD
<b>97</b>	0.64	3.8	Non DM+ Normal CKD
<b>98</b>	20.00	4.3	Non DM+ Normal CKD
<b>99</b>	62.43	3.8	Non DM+ Normal CKD
<b>100</b>	17.92	3.8	Non DM+ Normal CKD
<b>101</b>	30.00	4.3	Non DM+ Normal CKD
<b>102</b>	7.55	3.9	Non DM+ Normal CKD
<b>103</b>	10.00	3.7	Non DM+ Normal CKD
<b>104</b>	62.04	221.3	DM with severe protein in urine
<b>105</b>	62.84	37	DM with severe protein in urine
<b>106</b>	100.00	204.5	DM with severe protein in urine
<b>107</b>	150.00	197.2	DM with severe protein in urine
<b>108</b>	138.00	190	DM with severe protein in urine
<b>109</b>	132.73	102.9	DM with severe protein in urine
<b>110</b>	130.00	150.1	DM with severe protein in urine
<b>111</b>	25.00	56.5	DM with severe protein in urine
<b>112</b>	19.00	3	Normoproteinuric DM + CKD
<b>113</b>	14.00	3	Normoproteinuric DM + CKD
<b>114</b>	16.00	4	Normoproteinuric DM + CKD
<b>115</b>	18.00	3	Normoproteinuric DM + CKD
<b>116</b>	20.00	2	Normoproteinuric DM + CKD

<b>117</b>	19.00	3	Normoproteinuric DM + CKD
<b>118</b>	524.47	36	Normoproteinuric DM + CKD
<b>119</b>	14.46	3.86	Normoproteinuric DM + CKD
<b>120</b>	12	3	Normoproteinuric DM + CKD