

Supplemental Materials

Protein Corona Formation of Human Serum Albumin with Carbon Quantum Dots from Roasted Salmon

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Table S1. Contents of the identified glucose metabolites showing significant difference obtained from the CQDs and HSA-CQD coronas groups using serum-free DMEM medium as blank control.

| Component Name | Control-1 | Control-2 | Control-3 | Control-4 | Control-5 | Control-6 | CQDs-1 | CQDs-2 | CQDs-3 | CQDs-4 | CQDs-5 | CQDs-6 | HSA-CQDs-1 | HSA-CQDs-2 | HSA-CQDs-3 | HSA-CQDs-4 | HSA-CQDs-5 | HSA-CQDs-6 |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|------------|------------|------------|------------|------------|------------|
| Nicotinamide | 0.035607 | 0.045438 | 0.22583 | 0.034865 | 0.026234 | 0.072678 | 1.313305 | 1.059553 | 0.977885 | 1.09746 | 0.531771 | 0.766082 | 0.418497 | 0.462943 | 0.667616 | 1.333333 | 0.329074 | 0.68419 |
| Taurine | 0.1149 | 0.086758 | 0.100442 | 0.087621 | 0.081827 | 0.101638 | 0.057387 | 0.062462 | 0.053549 | 0.064315 | 0.060176 | 0.060014 | 0.072552 | 0.092355 | 0.089726 | 0.089972 | 0.09012 | 0.076504 |
| N-Acetyl-L-alanine | 0.011203 | 0.010578 | 0.015877 | 0.011362 | 0.012967 | 0.013407 | 0.007999 | 0.006756 | 0.006455 | 0.008429 | 0.008413 | 0.007468 | 0.00899 | 0.013139 | 0.017808 | 0.014516 | 0.010614 | 0.010423 |
| Octulose-monophosphate (OSP-O1P) | 0.003462 | 0.003836 | 0.002884 | 0.004448 | 0.002517 | 0.004432 | 0.008687 | 0.004891 | 0.006308 | 0.005682 | 0.006154 | 0.00594 | 0.00701 | 0.006596 | 0.006301 | 0.006098 | 0.006983 | 0.005077 |
| 2-ketohaxanoic acid | 0.002759 | 0.003872 | 0.005293 | 0.002343 | 0.004496 | 0.002317 | 0.003053 | 0.000537 | 0.00035 | 0.000782 | 0.001217 | 0.000563 | 0.000759 | 0.00112 | 0.00247 | 0.000984 | 0.000511 | 0.002788 |
| Dihydroxy-acetone-phosphate | 0.002294 | 0.003744 | 0.002209 | 0.001333 | 0.002419 | 0.001576 | 0.005903 | 0.003988 | 0.004081 | 0.00421 | 0.002757 | 0.005915 | 0.003831 | 0.002864 | 0.004567 | 0.006473 | 0.004466 | 0.003637 |
| Phosphorylcholine | 0.578732 | 1.558455 | 1.192817 | 0.472378 | 1.706531 | 2.364746 | 3.007531 | 1.832506 | 5.774038 | 3.643339 | 3.575521 | 5.73715 | 2.453757 | 4.467136 | 2.095206 | 2.364413 | 3.583815 | 3.269896 |
| CTP | 0.00193 | 0.000916 | 0.00148 | 0.001728 | 0.001079 | 0.001197 | 0.000521 | 0.000386 | 0.000581 | 0.000939 | 0.001089 | 0.00089 | 0.000794 | 0.000691 | 0.000866 | 0.001293 | 0.001428 | 0.000603 |
| Ribose-phosphate | 0.002547 | 0.002053 | 0.002894 | 0.00212 | 0.001675 | 0.00354 | 0.005492 | 0.005185 | 0.005476 | 0.009939 | 0.00314 | 0.005821 | 0.001778 | 0.002608 | 0.00137 | 0.00379 | 0.003428 | 0.002137 |
| Inosine | 0.000892 | 0.001309 | 0.001008 | 0.000693 | 0.00121 | 0.000947 | 0.025301 | 0.00982 | 0.011334 | 0.005386 | 0.004966 | 0.010486 | 0.001819 | 0.003531 | 0.002939 | 0.001702 | 0.003179 | 0.002354 |
| Hexose-phosphate | 0.010558 | 0.005725 | 0.005524 | 0.003689 | 0.005364 | 0.00369 | 0.009555 | 0.00789 | 0.008296 | 0.010665 | 0.007241 | 0.010589 | 0.005924 | 0.007169 | 0.007574 | 0.010398 | 0.00544 | 0.004015 |
| Uric acid | 0.045355 | 0.028782 | 0.027496 | 0.012093 | 0.010258 | 0.003979 | 0.00296 | 0.00118 | 0.002844 | 0.001686 | 0.002924 | 0.001237 | 0.002775 | 0.001696 | 0.006142 | 0.006917 | 0.003423 | 0.007684 |
| Indoleacrylic acid | 0.008916 | 0.008288 | 0.007996 | 0.001958 | 0.00533 | 0.00288 | 0.003557 | 0.001394 | 0.000958 | 0.00304 | 0.002542 | 0.001888 | 0.001875 | 0.001607 | 0.003597 | 0.00904 | 0.001801 | 0.003451 |
| P-aminobenzoate | 0.012072 | 0.012352 | 0.007383 | 0.003807 | 0.002399 | 0.005626 | 0.004083 | 0.001742 | 0.00058 | 0.002006 | 0.003062 | 0.00173 | 0.002068 | 0.000614 | 0.007072 | 0.007212 | 0.002238 | 0.004122 |
| Phenylpyruvate | 0.003781 | 0.006088 | 0.004547 | 0.001757 | 0.001635 | 0.001347 | 0.001008 | 0.000804 | 0.000466 | 0.001555 | 0.001007 | 0.00063 | 0.000476 | 0.000844 | 0.001444 | 0.001656 | 0.000475 | 0.000932 |
| Pantothenate | 0.031211 | 0.021309 | 0.017204 | 0.015581 | 0.018631 | 0.015518 | 0.016751 | 0.010481 | 0.012583 | 0.017477 | 0.011172 | 0.009133 | 0.012102 | 0.016868 | 0.016644 | 0.017959 | 0.012248 | 0.014608 |
| Glutathione disulfide | 0.029888 | 0.025647 | 0.044592 | 0.044707 | 0.039364 | 0.05406 | 0.053352 | 0.047611 | 0.056348 | 0.045877 | 0.048621 | 0.056046 | 0.090136 | 0.097378 | 0.121404 | 0.098009 | 0.126412 | 0.082522 |
| Amino adipic acid | 0.013538 | 0.011005 | 0.002052 | 0.005024 | 0.002265 | 0.004069 | 0.00138 | 0.000802 | 0.000861 | 0.001754 | 0.001447 | 0.001223 | 0.000646 | 0.001059 | 0.003289 | 0.002147 | 0.001 | 0.001555 |

Table S2. Contents of the identified lipids metabolites showing significant difference obtained from the cells treated with CQDs and HSA-CQD coronas groups using serum-free DMEM medium as blank control.

| Component Name | Control-1 | Control-2 | Control-3 | Control-4 | Control-5 | Control-6 | CQDs-1 | CQDs-2 | CQDs-3 | CQDs-4 | CQDs-5 | CQDs-6 | HSA-CQDs-1 | HSA-CQDs-2 | HSA-CQDs-3 | HSA-CQDs-4 | HSA-CQDs-5 | HSA-CQDs-6 |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|------------|------------|------------|------------|------------|------------|
| Cer 38:3-6 | 0.00023 | 0.000136 | 0.000198 | 0.000167 | 0.000247 | 0.000161 | 4.75E-05 | 9.07E-05 | 4.21E-05 | 0.000117 | 8.46E-05 | 0.000108 | 7.77E-05 | 0.00015 | 0.000143 | 0.000254 | 0.000235 | 0.000122 |
| FA 23:0 | 0.005841 | 0.005048 | 0.004401 | 0.003162 | 0.004617 | 0.005278 | 0.002946 | 0.00321 | 0.003178 | 0.003005 | 0.002507 | 0.002894 | 0.005908 | 0.005283 | 0.004104 | 0.006033 | 0.006442 | 0.005963 |
| LPC 22:0 | 0.000666 | 0.000527 | 0.000565 | 0.000592 | 0.000558 | 0.000529 | 0.000716 | 0.000815 | 0.000878 | 0.000746 | 0.00086 | 0.00069 | 0.000659 | 0.000382 | 0.000565 | 0.000628 | 0.000518 | 0.000369 |
| LPC 26:1 | 0.000614 | 0.000509 | 0.000484 | 0.000547 | 0.000515 | 0.000543 | 0.000684 | 0.00077 | 0.000873 | 0.000795 | 0.000815 | 0.000632 | 0.000731 | 0.000415 | 0.000649 | 0.000626 | 0.000523 | 0.000387 |
| LPE 18:1 | 4.47E-05 | 2.42E-05 | 3.16E-05 | 3.00E-05 | 3.04E-05 | 2.56E-05 | 5.66E-05 | 5.00E-05 | 6.14E-05 | 5.87E-05 | 3.30E-05 | 4.36E-05 | 4.95E-05 | 2.86E-05 | 2.78E-05 | 1.64E-05 | 2.44E-05 | 4.50E-05 |
| PC 23:0 | 4.43E-05 | 3.08E-05 | 4.53E-05 | 3.05E-05 | 3.71E-05 | 3.49E-05 | 5.84E-05 | 6.53E-05 | 6.08E-05 | 5.76E-05 | 7.62E-05 | 5.49E-05 | 5.32E-05 | 3.34E-05 | 5.32E-05 | 4.85E-05 | 4.02E-05 | 3.41E-05 |
| PC 28:2 | 0.000305 | 0.000295 | 0.000307 | 0.000295 | 0.000274 | 0.000296 | 0.000388 | 0.000342 | 0.000397 | 0.000345 | 0.000435 | 0.000337 | 0.000351 | 0.000265 | 0.000344 | 0.000331 | 0.000295 | 0.000179 |
| PC 29:1 | 0.002017 | 0.001636 | 0.001613 | 0.002054 | 0.001778 | 0.001504 | 0.004159 | 0.003079 | 0.003679 | 0.003512 | 0.002975 | 0.003373 | 0.002413 | 0.003076 | 0.003054 | 0.003317 | 0.002944 | 0.002435 |
| PC 29:2 | 0.000397 | 0.000463 | 0.000461 | 0.000543 | 0.000425 | 0.000453 | 0.000621 | 0.000641 | 0.000761 | 0.000747 | 0.000636 | 0.000555 | 0.000596 | 0.000319 | 0.00062 | 0.000558 | 0.000375 | 0.000299 |
| PC 30:3 | 0.000566 | 0.000883 | 0.000572 | 0.000567 | 0.000495 | 0.000487 | 0.001041 | 0.000999 | 0.002224 | 0.001207 | 0.00151 | 0.001782 | 0.000892 | 0.000589 | 0.001069 | 0.000903 | 0.000574 | 0.00033 |
| PC 30:4 | 7.25E-05 | 6.23E-05 | 3.78E-05 | 3.95E-05 | 3.73E-05 | 3.32E-05 | 0.000106 | 7.01E-05 | 8.71E-05 | 0.00014 | 9.95E-05 | 9.67E-05 | 5.65E-05 | 4.97E-05 | 4.87E-05 | 5.03E-05 | 8.45E-05 | 4.66E-05 |
| PC 35:5-2 | 0.002133 | 0.001537 | 0.001564 | 0.002076 | 0.00176 | 0.001749 | 0.002589 | 0.00226 | 0.002484 | 0.002586 | 0.002412 | 0.001952 | 0.002445 | 0.001508 | 0.001882 | 0.002153 | 0.001596 | 0.001095 |
| PC 36:6 | 0.011957 | 0.008455 | 0.010009 | 0.010881 | 0.009638 | 0.009009 | 0.015056 | 0.015714 | 0.017458 | 0.015724 | 0.015473 | 0.01513 | 0.015575 | 0.010974 | 0.015 | 0.014471 | 0.011558 | 0.009685 |
| PC 38:5-1 | 0.284601 | 0.239425 | 0.260482 | 0.273748 | 0.263636 | 0.245083 | 0.312987 | 0.293321 | 0.324304 | 0.292115 | 0.304824 | 0.297217 | 0.257236 | 0.212152 | 0.289796 | 0.284323 | 0.219202 | 0.170315 |
| PC 38:5-3 | 0.080083 | 0.070102 | 0.098609 | 0.170037 | 0.153525 | 0.122449 | 0.227458 | 0.29026 | 0.315121 | 0.215121 | 0.215028 | 0.252597 | 0.258256 | 0.166419 | 0.213729 | 0.211596 | 0.144991 | 0.155937 |
| PC 39:7 | 0.007776 | 0.005329 | 0.005532 | 0.006369 | 0.006019 | 0.005839 | 0.007999 | 0.008597 | 0.009224 | 0.007876 | 0.009527 | 0.007683 | 0.007135 | 0.005603 | 0.007334 | 0.008152 | 0.005685 | 0.004343 |
| PC 41:2-1 | 0.000607 | 0.000998 | 0.000555 | 0.00182 | 0.00118 | 0.002096 | 0.003455 | 0.003817 | 0.003664 | 0.003223 | 0.003807 | 0.003399 | 0.002539 | 0.00276 | 0.003002 | 0.002678 | 0.002646 | 0.002589 |
| PC 42:0 | 0.001384 | 0.001647 | 0.0016 | 0.001964 | 0.001547 | 0.001737 | 0.002257 | 0.002149 | 0.002232 | 0.002394 | 0.002082 | 0.002044 | 0.001918 | 0.001133 | 0.001654 | 0.001846 | 0.001685 | 0.000955 |
| PC 42:11 | 0.001562 | 0.001203 | 0.001375 | 0.001561 | 0.001353 | 0.001248 | 0.001703 | 0.00172 | 0.001872 | 0.001891 | 0.001915 | 0.00163 | 0.001447 | 0.001227 | 0.0016 | 0.001633 | 0.001266 | 0.00097 |
| PC 42:4 | 0.005201 | 0.005408 | 0.005536 | 0.005698 | 0.005484 | 0.005107 | 0.005918 | 0.005978 | 0.006015 | 0.006531 | 0.00623 | 0.005681 | 0.005651 | 0.004052 | 0.005798 | 0.005585 | 0.004228 | 0.003219 |
| PC 42:6 | 0.023228 | 0.018302 | 0.023173 | 0.028544 | 0.028924 | 0.02231 | 0.031197 | 0.031586 | 0.039481 | 0.027978 | 0.032004 | 0.032857 | 0.029388 | 0.024109 | 0.028887 | 0.030724 | 0.021336 | 0.018108 |
| PC 46:1 | 0.000113 | 0.000344 | 0.000238 | 0.000229 | 0.000211 | 0.000175 | 0.000564 | 0.000559 | 0.000569 | 0.000295 | 0.000448 | 0.000524 | 0.000491 | 0.000158 | 0.000257 | 0.000343 | 0.000258 | 0.000206 |
| PC 46:2 | 0.000402 | 0.00036 | 0.000536 | 0.000484 | 0.000386 | 0.000488 | 0.000827 | 0.000905 | 0.000811 | 0.000876 | 0.000738 | 0.000762 | 0.000801 | 0.000462 | 0.000644 | 0.000695 | 0.00068 | 0.000551 |

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|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| PC O-31:1-1 | 0.652597 | 0.533117 | 0.589981 | 0.617161 | 0.592208 | 0.579314 | 0.658256 | 0.675232 | 0.704731 | 0.681447 | 0.734601 | 0.666976 | 0.645826 | 0.489332 | 0.664286 | 0.663915 | 0.511781 | 0.365306 |
| PC O-34:4-1 | 0.00115 | 0.000997 | 0.001254 | 0.00146 | 0.001399 | 0.001315 | 0.001771 | 0.002068 | 0.002069 | 0.001967 | 0.001518 | 0.00186 | 0.001434 | 0.001081 | 0.001743 | 0.001859 | 0.000975 | 0.000776 |
| PC O-38:1-1 | 0.024443 | 0.025705 | 0.029963 | 0.029184 | 0.034165 | 0.029332 | 0.041169 | 0.045538 | 0.042505 | 0.039555 | 0.045928 | 0.045631 | 0.041809 | 0.029601 | 0.038673 | 0.04154 | 0.028627 | 0.027412 |
| PC O-38:5-2 | 0.057913 | 0.038089 | 0.053386 | 0.054536 | 0.039054 | 0.046299 | 0.077486 | 0.071837 | 0.078738 | 0.071614 | 0.073803 | 0.07423 | 0.066058 | 0.054833 | 0.077236 | 0.068015 | 0.054879 | 0.044425 |
| PC O-38:7 | 0.003251 | 0.00162 | 0.003561 | 0.003603 | 0.003659 | 0.003285 | 0.004727 | 0.004724 | 0.004994 | 0.004469 | 0.005132 | 0.004906 | 0.004256 | 0.003498 | 0.004321 | 0.005153 | 0.003759 | 0.002772 |
| PC O-39:1 | 0.089879 | 0.141558 | 0.167625 | 0.161224 | 0.149722 | 0.142022 | 0.169017 | 0.186456 | 0.209926 | 0.208349 | 0.217904 | 0.199722 | 0.154453 | 0.159184 | 0.186456 | 0.178386 | 0.142857 | 0.13859 |
| PC O-41:1 | 0.001481 | 0.002062 | 0.00254 | 0.002378 | 0.002285 | 0.002118 | 0.003288 | 0.003391 | 0.004078 | 0.003455 | 0.003358 | 0.003309 | 0.002838 | 0.002496 | 0.003046 | 0.00307 | 0.002495 | 0.002074 |
| PC O-41:3 | 0.011345 | 0.016058 | 0.018766 | 0.019981 | 0.018896 | 0.016373 | 0.021494 | 0.024082 | 0.024406 | 0.024416 | 0.024443 | 0.024249 | 0.019425 | 0.017134 | 0.022774 | 0.021707 | 0.017356 | 0.014963 |
| PE O-36:2-2 | 0.001102 | 0.001186 | 0.001078 | 0.00119 | 0.001055 | 0.001172 | 0.001366 | 0.001157 | 0.001397 | 0.001474 | 0.00137 | 0.001351 | 0.00099 | 0.000817 | 0.001119 | 0.001269 | 0.000921 | 0.000628 |
| PE O-36:4-1 | 0.002327 | 0.001897 | 0.001925 | 0.002244 | 0.001851 | 0.002076 | 0.002254 | 0.002546 | 0.002707 | 0.002351 | 0.002354 | 0.002417 | 0.00213 | 0.001698 | 0.002383 | 0.002358 | 0.00161 | 0.001237 |
| PE O-38:6-1 | 0.001816 | 0.001925 | 0.001599 | 0.001609 | 0.001886 | 0.001519 | 0.002083 | 0.002389 | 0.002308 | 0.002064 | 0.002067 | 0.002188 | 0.002339 | 0.00137 | 0.002199 | 0.002412 | 0.00151 | 0.00189 |
| PE O-40:3 | 0.00272 | 0.003899 | 0.004039 | 0.003582 | 0.003521 | 0.003029 | 0.005836 | 0.005312 | 0.006008 | 0.005059 | 0.00533 | 0.004484 | 0.004519 | 0.0043 | 0.004419 | 0.004163 | 0.004124 | 0.002542 |
| PE O-40:4 | 0.006977 | 0.007247 | 0.007271 | 0.007352 | 0.008214 | 0.006651 | 0.007952 | 0.008383 | 0.009647 | 0.00892 | 0.009508 | 0.009274 | 0.008878 | 0.006688 | 0.008691 | 0.008631 | 0.006372 | 0.004542 |
| PE O-40:6-9 | 0.003494 | 0.002838 | 0.002905 | 0.00354 | 0.003435 | 0.002764 | 0.003916 | 0.003933 | 0.004591 | 0.004092 | 0.004147 | 0.004257 | 0.00402 | 0.002699 | 0.003304 | 0.003614 | 0.002825 | 0.002171 |
| PI 34:0 | 0.000685 | 0.000686 | 0.00067 | 0.000861 | 0.000715 | 0.0008 | 0.000922 | 0.00086 | 0.000942 | 0.001161 | 0.001138 | 0.000988 | 0.000819 | 0.000734 | 0.000981 | 0.000948 | 0.000735 | 0.000624 |
| PI 36:0-1 | 0.000532 | 0.000538 | 0.000668 | 0.00065 | 0.000659 | 0.000649 | 0.000837 | 0.000858 | 0.00086 | 0.000922 | 0.000994 | 0.000881 | 0.000862 | 0.000589 | 0.000791 | 0.000792 | 0.000701 | 0.000576 |
| PI 36:0-2 | 0.000476 | 0.00052 | 0.000517 | 0.000561 | 0.00058 | 0.000576 | 0.000748 | 0.000788 | 0.000808 | 0.000839 | 0.000878 | 0.000897 | 0.000777 | 0.000544 | 0.000768 | 0.000705 | 0.000601 | 0.000558 |
| PI 36:4-3 | 0.004795 | 0.004817 | 0.005699 | 0.005817 | 0.005837 | 0.005276 | 0.006418 | 0.006625 | 0.007179 | 0.007532 | 0.008056 | 0.006975 | 0.006288 | 0.00488 | 0.006959 | 0.006519 | 0.005389 | 0.0051 |
| PI 37:3 | 0.00017 | 0.000113 | 0.000155 | 0.000111 | 0.000164 | 0.000172 | 0.000303 | 0.000301 | 0.000257 | 0.000174 | 0.000323 | 0.000301 | 0.000263 | 0.000202 | 0.000179 | 0.000226 | 0.000214 | 0.000199 |
| PI 40:4-1 | 0.00039 | 0.000409 | 0.000441 | 0.000421 | 0.000466 | 0.000369 | 0.000495 | 0.000517 | 0.000546 | 0.000527 | 0.000569 | 0.000553 | 0.000495 | 0.000419 | 0.000466 | 0.000405 | 0.000466 | 0.000432 |
| PI 40:5-1 | 0.000206 | 0.000271 | 0.000235 | 0.000367 | 0.000411 | 0.000326 | 0.000407 | 0.000394 | 0.000452 | 0.000446 | 0.000502 | 0.000453 | 0.000344 | 0.000339 | 0.000418 | 0.000338 | 0.000345 | 0.00034 |
| PI 40:5-2 | 0.002687 | 0.002905 | 0.003077 | 0.003125 | 0.003045 | 0.003067 | 0.003391 | 0.003548 | 0.004055 | 0.00397 | 0.004169 | 0.004186 | 0.003397 | 0.003145 | 0.003576 | 0.003675 | 0.003248 | 0.003072 |
| PS 40:5 | 0.003957 | 0.004156 | 0.00425 | 0.005213 | 0.005425 | 0.004929 | 0.005627 | 0.005825 | 0.005487 | 0.005688 | 0.006263 | 0.006403 | 0.005499 | 0.004772 | 0.005578 | 0.005236 | 0.004831 | 0.004808 |
| SM 32:1 | 0.02218 | 0.021058 | 0.021419 | 0.022171 | 0.020955 | 0.021122 | 0.025955 | 0.02641 | 0.028312 | 0.026614 | 0.028358 | 0.024731 | 0.023581 | 0.017848 | 0.024137 | 0.024332 | 0.019499 | 0.014378 |
| SM 33:1 | 0.037913 | 0.039453 | 0.035724 | 0.043609 | 0.035121 | 0.037941 | 0.059768 | 0.050798 | 0.053071 | 0.047301 | 0.049091 | 0.044481 | 0.047597 | 0.031549 | 0.043738 | 0.045028 | 0.030733 | 0.035909 |
| SM 33:2 | 0.000877 | 0.001007 | 0.000872 | 0.001126 | 0.000878 | 0.000972 | 0.001391 | 0.001217 | 0.001214 | 0.0012 | 0.001245 | 0.001122 | 0.001083 | 0.000564 | 0.000897 | 0.000919 | 0.000577 | 0.000606 |
| SM 34:0 | 0.137199 | 0.104267 | 0.118367 | 0.139332 | 0.119295 | 0.119388 | 0.145826 | 0.161874 | 0.187106 | 0.157607 | 0.17885 | 0.152134 | 0.130241 | 0.091549 | 0.153525 | 0.144898 | 0.092208 | 0.06616 |
| PE 21:0 | 0.005336 | 0.003835 | 0.004054 | 0.004536 | 0.00432 | 0.004581 | 0.006455 | 0.007452 | 0.008338 | 0.008074 | 0.007913 | 0.00683 | 0.00677 | 0.004408 | 0.006975 | 0.006751 | 0.005013 | 0.003614 |
| PE 39:2 | 0.024982 | 0.037806 | 0.031821 | 0.040323 | 0.031156 | 0.038067 | 0.051555 | 0.050059 | 0.057231 | 0.046497 | 0.044123 | 0.053052 | 0.055094 | 0.034149 | 0.045595 | 0.038851 | 0.036405 | 0.029114 |

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|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| PE 39:5-2 | 0.209784 | 0.164735 | 0.198813 | 0.227119 | 0.229019 | 0.195037 | 0.267632 | 0.280693 | 0.298504 | 0.253147 | 0.276181 | 0.264545 | 0.246735 | 0.167062 | 0.261458 | 0.224365 | 0.153954 | 0.14664 |
| PE 39:6 | 0.205082 | 0.280456 | 0.246022 | 0.285443 | 0.262645 | 0.249109 | 0.279269 | 0.367609 | 0.364047 | 0.282118 | 0.323201 | 0.327476 | 0.30729 | 0.220185 | 0.291617 | 0.29043 | 0.215531 | 0.256709 |
| PE 39:7 | 0.050107 | 0.033507 | 0.04664 | 0.04854 | 0.05222 | 0.045215 | 0.054453 | 0.052862 | 0.065899 | 0.057659 | 0.06388 | 0.055165 | 0.049537 | 0.043529 | 0.05431 | 0.057943 | 0.037283 | 0.029494 |
| PG 43:5 | 0.258901 | 0.248393 | 0.418251 | 0.303076 | 0.403042 | 0.391981 | 0.412375 | 0.55859 | 0.483581 | 0.611822 | 0.547183 | 0.562046 | 0.363291 | 0.388178 | 0.417214 | 0.418251 | 0.36018 | 0.329831 |
| TAG 54:3-3 | 0.198518 | 0.069933 | 0.034393 | 0.052079 | 0.066802 | 0.064603 | 0.505975 | 0.430927 | 0.481119 | 0.317639 | 0.72825 | 0.217543 | 0.267925 | 0.134512 | 0.225335 | 0.164866 | 0.115703 | 0.155521 |
| TAG 54:4-4 | 0.178991 | 0.314293 | 0.300908 | 0.411807 | 0.244503 | 0.498566 | 1.4663 | 1.372132 | 1.330784 | 1.143642 | 1.400335 | 1.036807 | 0.955306 | 0.919455 | 0.684751 | 0.736138 | 0.677581 | 0.585325 |
| TAG 54:6-2 | 0.329589 | 0.073446 | 0.048709 | 0.069431 | 0.10815 | 0.05662 | 0.851099 | 0.678537 | 0.656071 | 0.805449 | 0.691922 | 0.443834 | 0.568117 | 0.270793 | 0.11262 | 0.287763 | 0.126434 | 0.442161 |
| TAG 56:1-1 | 0.03903 | 0.036305 | 0.074355 | 0.063337 | 0.111711 | 0.054828 | 0.195196 | 0.210994 | 0.201243 | 0.26673 | 0.21881 | 0.112954 | 0.0913 | 0.123064 | 0.155784 | 0.17249 | 0.133676 | 0.122777 |
| TAG 56:2-2 | 0.072658 | 0.073446 | 0.090033 | 0.075239 | 0.151649 | 0.136902 | 0.229876 | 0.280354 | 0.314771 | 0.431644 | 0.368786 | 0.25478 | 0.188791 | 0.161592 | 0.236807 | 0.180139 | 0.169742 | 0.149522 |
| TAG 56:3-1 | 0.399379 | 0.099307 | 0.066061 | 0.059536 | 0.10521 | 0.092854 | 0.515057 | 0.898901 | 0.781549 | 1.016491 | 1.488528 | 0.805927 | 0.168595 | 0.268881 | 0.653681 | 0.779637 | 0.715344 | 0.429493 |
| TAG 56:6-6 | 0.090535 | 0.142041 | 0.050932 | 0.039484 | 0.057218 | 0.085803 | 0.454111 | 0.377868 | 0.428298 | 0.490918 | 0.404398 | 0.309273 | 0.290631 | 0.345363 | 0.268881 | 0.227223 | 0.284656 | 0.326004 |
| TAG(p) 54:1 | 0.737094 | 0.582457 | 0.97108 | 0.445746 | 0.816444 | 0.832935 | 1.130736 | 1.030354 | 1.058078 | 1.266252 | 1.078633 | 0.86544 | 0.676625 | 0.760755 | 0.913241 | 0.950765 | 1.066922 | 0.590822 |
| TAG(p) 56:3 | 0.469407 | 0.395076 | 0.625478 | 0.381931 | 0.456979 | 0.473709 | 1.24283 | 1.011472 | 1.05043 | 1.422084 | 1.034417 | 0.72347 | 0.756453 | 0.672323 | 0.761711 | 0.736616 | 0.852294 | 0.525335 |

Table S3. Body and major organ weight of mice after oral administration of 0.9% NaCl (control) and CQDs.

| Gender | Items mice | Percentage of body (%) | |
|------------|------------|------------------------|-----------|
| | | 0.9% NaCl | CQDs |
| Female | Whole body | 100±12.34 | 100±14.65 |
| | Intestines | 9.43±0.68 | 8.51±1.15 |
| | Stomach | 1.26±0.25 | 1.49±0.23 |
| | Spleen | 0.42±0.14 | 0.43±0.13 |
| | Kidney | 1.38±0.13 | 1.31±0.12 |
| | Liver | 4.93±0.47 | 4.65±0.46 |
| | Heart | 0.81±0.14 | 0.84±0.13 |
| | Lung | 1.07±0.13 | 0.91±0.11 |
| | Brain | 2.85±0.26 | 2.58±0.18 |
| | Male | Whole body | 100±11.89 |
| Intestines | | 8.84±0.62 | 8.72±1.10 |
| Stomach | | 1.43±0.30 | 1.48±0.25 |
| Spleen | | 0.41±0.06 | 0.33±0.10 |
| Kidney | | 1.65±0.18 | 1.47±0.18 |
| Liver | | 4.76±0.57 | 4.78±0.59 |
| Heart | | 0.97±0.12 | 0.88±0.10 |
| Lung | | 0.73±0.34 | 0.80±0.09 |
| Brain | | 2.26±0.21 | 2.10±0.22 |

Note: the differences between the CQDs and control for body and each major organ weight were not significant.

Table S4. Comparison of GPT, AST, ALP, LDH, urea and creatinine of mice serum orally administrated 0.9% NaCl (control) and CQDs.

| Gender | Biochemical index | 0.9% NaCl (n=10) | CQDs (n=10) |
|--------|-----------------------------------|------------------|---------------|
| Female | GPT (U L ⁻¹) | 36.80±8.58 | 41.90±9.93 |
| | AST (U L ⁻¹) | 143.60±32.85 | 141.11±30.41 |
| | ALP (U L ⁻¹) | 169.00±34.28 | 128.00±22.57 |
| | LDH (U L ⁻¹) | 793.50±118.33 | 640.00±96.87 |
| | Urea (mg dL ⁻¹) | 7.21±0.96 | 7.57±1.55 |
| | Creatinine (mg dL ⁻¹) | 92.20±4.38 | 78.89±13.12 |
| Male | GPT (U L ⁻¹) | 34.80±8.87 | 39.22±7.64 |
| | AST (U L ⁻¹) | 104.50±19.28 | 124.78±18.21 |
| | ALP (U L ⁻¹) | 196.00±63.55 | 150.57±23.55 |
| | LDH (U L ⁻¹) | 605.67±105.19 | 714.75±102.17 |
| | Urea (mg dL ⁻¹) | 10.41±0.34 | 8.73±1.45 |
| | Creatinine (mg dL ⁻¹) | 87.60±12.97 | 83.63±17.52 |

Note: the differences between the CQDs and control for body and each major organ weight were not significant.

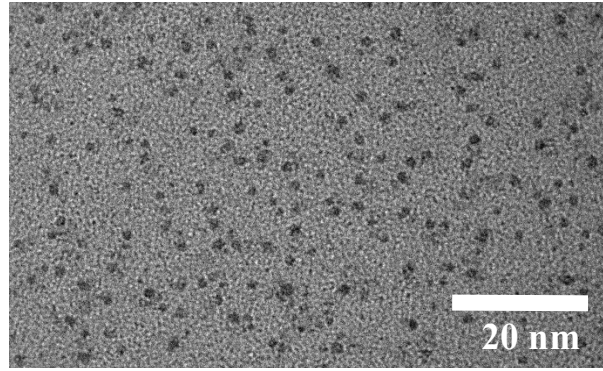


Fig. S1. TEM image of CQDs derived from roast salmon.

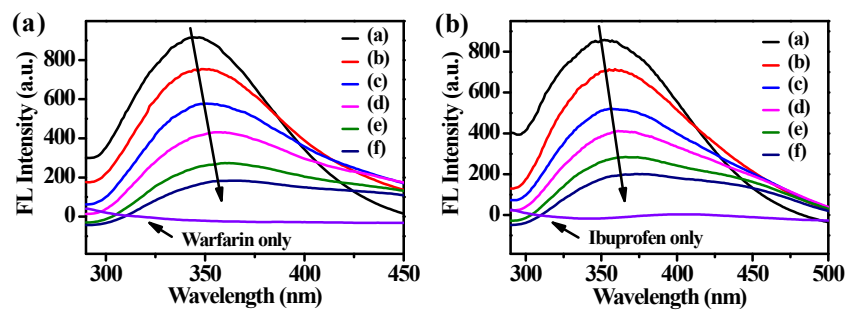


Fig. S2. Fluorescence changes of the HSA-CQDs system upon adding (a) warfarin and (b) ibuprofen. $c_{\text{(HSA)}} = c_{\text{(warfarin)}} = c_{\text{(ibuprofen)}} = 1 \times 10^{-5}$ mol/L; $c_{\text{(CQDs)}} = 0, 0.5, 1, 1.5, 2,$ and 2.5 (a-f), respectively. $T = 298$ K, $\lambda_{\text{ex}} = 280$ nm.

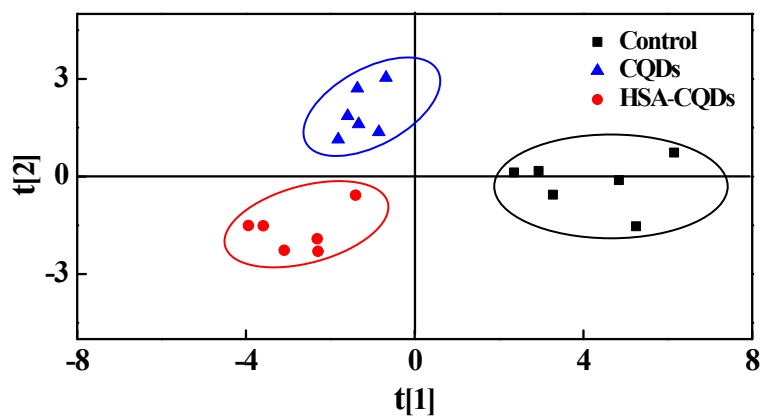


Fig. S3. PLS-DA score plot of glucose metabolism profile models constructed from NRK samples of the CQDs and HSA-CQD coronas groups using serum-free DMEM medium as blank control ($R^2X=0.615$, $R^2Y = 0.856$, Q^2 (cum) = 0.792).

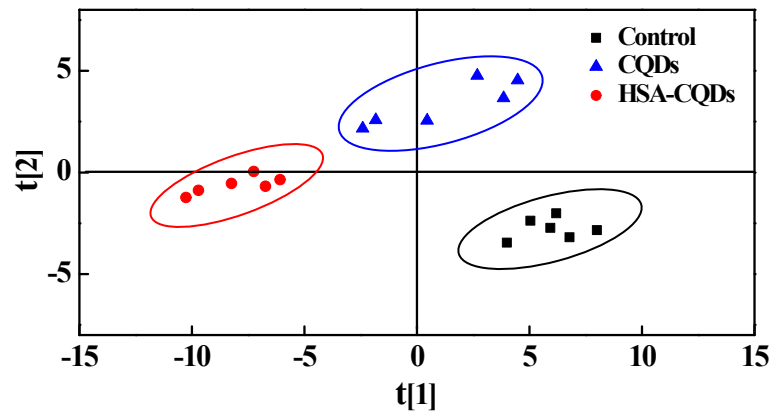


Fig. S4. PLS-DA score plot of lipid profile models constructed from NRK cells of the CQDs and HSA-CQD coronas groups ($R^2X = 0.818$, $R^2Y = 0.974$ and Q^2 (cum) = 0.929) using serum-free DMEM medium as blank control.