

Table S5.1. Significantly differential metabolites of urine samples from AIA-Cold rats detected by LC/MS

| Groups | Samples | Description | AIA-Cold/Con | Log2FC | Pathways |
|----------|---------|-----------------------------------|--------------|-------------|------------------------------------|
| AIA-Cold | Urine | S-(5'-Adenosyl)-L-Methionine | 0.493307557 | -1.01944071 | Arginine and proline metabolism |
| AIA-Cold | Urine | Creatine | 8.366479749 | 3.064620727 | Arginine and proline metabolism |
| AIA-Cold | Urine | 4-Guanidinobutanoate | 0.456869248 | -1.13014676 | Arginine and proline metabolism |
| AIA-Cold | Urine | Thiamine Pyrophosphate | 0.435838836 | -1.19813334 | Citrate cycle (TCA cycle) |
| AIA-Cold | Urine | Phosphoenolpyruvate | 9.225972078 | 3.205700926 | Citrate cycle (TCA cycle) |
| AIA-Cold | Urine | Citrate | 13.51756784 | 3.756763692 | Citrate cycle (TCA cycle) |
| AIA-Cold | Urine | UDP-Glucose | 0.162301075 | -2.62325554 | Galactose metabolism |
| AIA-Cold | Urine | Stachyose | 21.13657715 | 4.401669861 | Galactose metabolism |
| AIA-Cold | Urine | Glucose | 2.240857499 | 1.164050907 | Galactose metabolism |
| AIA-Cold | Urine | D-(+)-Raffinose | 18.96958542 | 4.245616244 | Galactose metabolism |
| AIA-Cold | Urine | 2-Deoxy-D-Glucose | 2.164046845 | 1.11373173 | Galactose metabolism |
| AIA-Cold | Urine | Phenylpyruvate | 0.46797327 | -1.09550197 | Phenylalanine metabolism |
| AIA-Cold | Urine | Phenylacetic Acid | 0.389913184 | -1.35877516 | Phenylalanine metabolism |
| AIA-Cold | Urine | Phenylacetaldehyde | 0.096844459 | -3.36818668 | Phenylalanine metabolism |
| AIA-Cold | Urine | Hippurate | 0.464735508 | -1.10551822 | Phenylalanine metabolism |
| AIA-Cold | Urine | Tetrahydrocortisol | 34.98765671 | 5.128774138 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Testosterone | 2.338566587 | 1.225624508 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Progesterone | 75.8709099 | 6.245474935 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Pregnenolone | 0.181938097 | -2.45848043 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Dehydroepiandrosterone sulfate | 18.11655182 | 4.179236484 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Dehydroepiandrosterone | 6.341607405 | 2.664848566 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Cortisone | 4.262827019 | 2.091810513 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Cortisol | 5.431122366 | 2.441250368 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Corticosterone | 10.82678542 | 3.436533051 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Androsterone | 6.847270516 | 2.77552901 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Androstenedione | 22.48667876 | 4.490998688 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | 17-hydroxypregnenolone | 38.19807245 | 5.255427934 | Steroid hormone biosynthesis |
| AIA-Cold | Urine | Taurine | 10.38314551 | 3.376171661 | Taurine and hypotaurine metabolism |
| AIA-Cold | Urine | Hypotaurine | 0.356084792 | -1.48970727 | Taurine and hypotaurine metabolism |
| AIA-Cold | Urine | Kynurenine | 0.435052474 | -1.20073867 | Tryptophan metabolism |
| AIA-Cold | Urine | Indole-3-Acetic Acid | 0.404480557 | -1.30585774 | Tryptophan metabolism |
| AIA-Cold | Urine | Anthranilate | 0.476646397 | -1.0690087 | Tryptophan metabolism |
| AIA-Cold | Urine | 5-Hydroxy-L-Tryptophan | 2.529955097 | 1.33911178 | Tryptophan metabolism |
| AIA-Cold | Urine | 5-Hydroxyindoleacetate | 4.320686708 | 2.111260625 | Tryptophan metabolism |
| AIA-Cold | Urine | 3-Hydroxykynurenine | 0.375290127 | -1.41392176 | Tryptophan metabolism |
| AIA-Cold | Urine | Xanthine | 6.911980056 | 2.789099055 | |
| AIA-Cold | Urine | Trans-Cinnamate | 0.299095254 | -1.74132307 | |
| AIA-Cold | Urine | Trans-Cinnamaldehyde | 0.356723743 | -1.48712085 | |
| AIA-Cold | Urine | Threonine | 9.556989015 | 3.25655616 | |
| AIA-Cold | Urine | Sorbate | 15.04482367 | 3.911195293 | |
| AIA-Cold | Urine | Sn-Glycero-3-Phosphocholine | 30.37905837 | 4.925005247 | |
| AIA-Cold | Urine | Salicylic Acid | 0.449927047 | -1.152237 | |
| AIA-Cold | Urine | Retinol | 0.307094825 | -1.70324389 | |
| AIA-Cold | Urine | Quinoline | 0.389852028 | -1.35900146 | |
| AIA-Cold | Urine | Pantolactone | 21.79111555 | 4.445668149 | |
| AIA-Cold | Urine | Oxalomalic Acid | 0.361024983 | -1.46982942 | |
| AIA-Cold | Urine | Nonanoate | 0.391239189 | -1.35387721 | |
| AIA-Cold | Urine | N-Methyl-L-Glutamate | 10.11304379 | 3.338145374 | |
| AIA-Cold | Urine | Nalpa-Acetyl-L-Lysine | 2.276706577 | 1.186948368 | |
| AIA-Cold | Urine | N-Acetylneuraminic acid | 2.227813456 | 1.155628435 | |
| AIA-Cold | Urine | N-Acetyl-L-Cysteine | 0.378552122 | -1.40143614 | |
| AIA-Cold | Urine | N,N-Dimethyl-1,4-Phenylenediamine | 0.408605053 | -1.29122105 | |
| AIA-Cold | Urine | Methyl Jasmonate | 5.420272604 | 2.438365412 | |
| AIA-Cold | Urine | L-Homocysteine Thiolactone | 0.442256571 | -1.17704452 | |
| AIA-Cold | Urine | Leukotriene B4 | 5.381696155 | 2.42806094 | |
| AIA-Cold | Urine | Inosine | 6.825231904 | 2.770878066 | Purine metabolism |
| AIA-Cold | Urine | Hydroxypyruvate | 217.9797829 | 7.768050525 | |
| AIA-Cold | Urine | Hydroxyproline | 0.437067861 | -1.1940708 | |

| | | | | | |
|----------|-------|------------------------------|-------------|-------------|-------------------|
| AIA-Cold | Urine | Hexadecanoic Acid | 2.601195915 | 1.379175063 | |
| AIA-Cold | Urine | Glyceraldehyde | 2.452813066 | 1.294437287 | |
| AIA-Cold | Urine | Glutarate | 3.54718143 | 1.826673123 | |
| AIA-Cold | Urine | Gluconic Acid | 3.202269783 | 1.679094856 | |
| AIA-Cold | Urine | Geranylgeranyl Pyrophosphate | 3.035373634 | 1.601874113 | |
| AIA-Cold | Urine | Flumethasone | 0.042990782 | -4.53982885 | |
| AIA-Cold | Urine | Farnesyl Diphosphate | 2.090732878 | 1.064008748 | |
| AIA-Cold | Urine | Ethyl 3-Ureidopropionate | 22.86375791 | 4.514990641 | |
| AIA-Cold | Urine | Epinephrine | 0.46719575 | -1.09790094 | |
| AIA-Cold | Urine | D-Ribulose 1,5-Bisphosphate | 0.307929047 | -1.69933013 | |
| AIA-Cold | Urine | D-Lactose | 4.555747916 | 2.18768792 | |
| AIA-Cold | Urine | De thiobiotin | 7.212633035 | 2.850526024 | |
| AIA-Cold | Urine | Deoxyribose | 2.47460175 | 1.307196363 | |
| AIA-Cold | Urine | D-(+)-Galacturonic Acid | 2.024439751 | 1.017522708 | |
| AIA-Cold | Urine | Cytidine 5'-Diphosphate | 0.388450448 | -1.36419752 | |
| AIA-Cold | Urine | Citramalate | 2.764924578 | 1.467240127 | |
| AIA-Cold | Urine | Cholic Acid | 5.414686778 | 2.436877885 | |
| AIA-Cold | Urine | cGMP | 4.540612856 | 2.182887034 | |
| AIA-Cold | Urine | Carnitine | 21.79275615 | 4.445776762 | |
| AIA-Cold | Urine | Carbamoylphosphate | 9.977406658 | 3.318664877 | |
| AIA-Cold | Urine | C22-OH Sulfatide | 33.83084174 | 5.080267168 | |
| AIA-Cold | Urine | Benzyl Alcohol | 0.481707231 | -1.05377151 | |
| AIA-Cold | Urine | Beclomethasone | 25.37518169 | 4.665346247 | |
| AIA-Cold | Urine | Azelaic Acid | 3.027059042 | 1.597916815 | |
| AIA-Cold | Urine | Aniline-2-Sulfonic Acid | 0.496447511 | -1.0102869 | |
| AIA-Cold | Urine | Aniline | 0.271501748 | -1.88096661 | |
| AIA-Cold | Urine | AMP | 2.920232314 | 1.546083145 | |
| AIA-Cold | Urine | 6-Phosphogluconate | 3.761257247 | 1.911214981 | |
| AIA-Cold | Urine | 5,6-Dihydrouracil | 4.195313606 | 2.068778658 | |
| AIA-Cold | Urine | 4-Hydroxybenzaldehyde | 0.324205044 | -1.62502156 | |
| AIA-Cold | Urine | 3-Methoxy-L-Tyrosine | 4.511241417 | 2.173524493 | |
| AIA-Cold | Urine | 3-Hydroxybutanoic Acid | 2.083795397 | 1.05921363 | |
| AIA-Cold | Urine | 2'-Deoxyguanosine | 0.430655361 | -1.21539431 | Purine metabolism |
| AIA-Cold | Urine | 2'-Deoxyadenosine | 2.729267466 | 1.448513784 | Purine metabolism |
| AIA-Cold | Urine | 2,6-Dihydroxypyridine | 0.491053548 | -1.02604774 | |
| AIA-Cold | Urine | 1-Methylhistidine | 2.835295542 | 1.503499125 | |
| AIA-Cold | Urine | (S)-1-Phenylethanol | 0.420250544 | -1.25067841 | |

Table S5.2. Significantly differential metabolites of serum samples from AIA-Cold rats detected by LC/MS

| Groups | Samples | Description | AIA-Cold/Con | Log2FC | Pathways |
|----------|---------|-------------------------------------|--------------|-------------|------------------------------|
| AIA-Cold | Serum | Phenylacetaldehyde | 0.085664951 | -3.54515113 | Phenylalanine metabolism |
| AIA-Cold | Serum | Dehydroepiandrosterone sulfate | 1.501265023 | 0.586178683 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Androsterone | 0.059615889 | -4.0681593 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Pregnenolone | 0.037170839 | -4.74968494 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Dehydroepiandrosterone | 0.243032474 | -2.04077899 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | 17-hydroxypregnenolone | 0.087797258 | -3.5096803 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Tetrahydrodeoxycorticosterone | 0.008080726 | -6.95129933 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Pregnanolone | 0.136743994 | -2.87045063 | Steroid hormone biosynthesis |
| AIA-Cold | Serum | Menaquinone | 0.2327841 | -2.10293558 | Ubiquinone biosynthesis |
| AIA-Cold | Serum | Phylloquinone | 0.008918786 | -6.80893686 | Ubiquinone biosynthesis |
| AIA-Cold | Serum | 2-Arachidonoylglycerol | 0.034884515 | -4.84126941 | |
| AIA-Cold | Serum | Farnesyl Diphosphate | 2.456275287 | 1.29647226 | |
| AIA-Cold | Serum | Amylose | 0.191652544 | -2.38343494 | |
| AIA-Cold | Serum | Caffeine | 0.397726454 | -1.33015157 | |
| AIA-Cold | Serum | Uridine 5'-Diphosphoglucuronic Acid | 0.041484101 | -4.59129768 | |
| AIA-Cold | Serum | Myristic Acid | 0.528758247 | -0.91931984 | |
| AIA-Cold | Serum | N,N-Dimethyl-1,4-Phenylenediamine | 0.107479449 | -3.21786726 | |
| AIA-Cold | Serum | Retinol | 0.101298017 | -3.30332216 | |
| AIA-Cold | Serum | 9E-Octadecenoic Acid | 0.163647288 | -2.6113384 | |
| AIA-Cold | Serum | Glyoxylic Acid | 0.127665057 | -2.96956439 | |
| AIA-Cold | Serum | PCe 36:5 | 4.213406309 | 2.074987045 | |
| AIA-Cold | Serum | N-Acetyl-DL-Glutamic Acid | 0.084692242 | -3.56162637 | |
| AIA-Cold | Serum | LPC 20:1 | 2.569771867 | 1.361640289 | |
| AIA-Cold | Serum | LPC 20:2 | 0.189925193 | -2.39649681 | |
| AIA-Cold | Serum | PC 38:7 | 2.986995377 | 1.578695005 | |
| AIA-Cold | Serum | Rac-Glycerol 1-Myristate | 3.239348281 | 1.695703589 | |
| AIA-Cold | Serum | Octadecanoic Acid | 2.09543978 | 1.067253061 | |
| AIA-Cold | Serum | 1-Oleoyl-Rac-Glycerol | 3.012716657 | 1.591064995 | |
| AIA-Cold | Serum | Desmosterol | 0.023735747 | -5.39679475 | |
| AIA-Cold | Serum | C18DH Cer | 0.457969643 | -1.12667612 | |
| AIA-Cold | Serum | PG 38:3 | 3.593510032 | 1.845393713 | |
| AIA-Cold | Serum | PS 28:2 | 0.0607965 | -4.03986792 | |
| AIA-Cold | Serum | Dihydroorotic Acid | 0.38068243 | -1.39334011 | |
| AIA-Cold | Serum | C12 Sphingomyelin | 2.135159006 | 1.094343512 | |
| AIA-Cold | Serum | Beclomethasone | 0.005371525 | -7.54045257 | |
| AIA-Cold | Serum | Geranyl Pyrophosphate | 2.322803574 | 1.215867159 | |
| AIA-Cold | Serum | PEp 36:4 | 2.741021464 | 1.454713626 | |
| AIA-Cold | Serum | Citramalate | 2.239983112 | 1.163487855 | |
| AIA-Cold | Serum | L-Anserine | 3.268028875 | 1.70842073 | |
| AIA-Cold | Serum | C22DH Sphingomyelin | 3.665688221 | 1.874084085 | |
| AIA-Cold | Serum | MG (16:0/0:0/0:0) | 2.151450087 | 1.10530937 | |
| AIA-Cold | Serum | Quinate | 0.2133233 | -2.22888655 | |
| AIA-Cold | Serum | Benzylamine | 4.767364724 | 2.253192002 | |
| AIA-Cold | Serum | Leukotriene B4 | 2.059564909 | 1.042339595 | |
| AIA-Cold | Serum | PS 28:0 | 2.794710358 | 1.482698771 | |
| AIA-Cold | Serum | Glycocholic Acid | 0.356330801 | -1.4887109 | |
| AIA-Cold | Serum | LPC 18:0 | 0.12313413 | -3.02169739 | |
| AIA-Cold | Serum | Cholic Acid | 6.584722518 | 2.719122646 | |
| AIA-Cold | Serum | HexCer d18:1/16:0 | 0.080578544 | -3.63346045 | |
| AIA-Cold | Serum | Taurocholic Acid | 21.06141075 | 4.39653017 | |

Table S5.3. Significantly differential metabolites of urine samples from AIA-Hot rats detected by LC/MS

| Groups | Samples | Description | AIA-Hot/Con | Log2FC | Pathways |
|---------|---------|-----------------------------------|-------------|-------------|--|
| AIA-Hot | Urine | 4-Aminobutanoate | 2.044823916 | 1.031976615 | Arginine and proline metabolism |
| AIA-Hot | Urine | Creatine | 0.143997809 | -2.79588124 | Arginine and proline metabolism |
| AIA-Hot | Urine | 4-Guanidinobutanoate | 23.41724783 | 4.549499624 | Arginine and proline metabolism |
| AIA-Hot | Urine | Phosphocreatine | 2.90095955 | 1.536530179 | Arginine and proline metabolism |
| AIA-Hot | Urine | S-(5'-Adenosyl)-L-Methionine | 2.337731493 | 1.225109235 | Arginine and proline metabolism |
| AIA-Hot | Urine | Glutamine | 0.37495249 | -1.41522029 | D-Glutamine and D-glutamate metabolism/Nitrogen metabolism |
| AIA-Hot | Urine | Glutamic Acid | 0.064917039 | -3.94525899 | D-Glutamine and D-glutamate metabolism/Arginine and proline metabolism/Nitrogen metabolism |
| AIA-Hot | Urine | Raffinose | 0.314995055 | -1.66659891 | Galactose metabolism |
| AIA-Hot | Urine | Phenylacetaldehyde | 24.91582189 | 4.638990259 | Phenylalanine metabolism |
| AIA-Hot | Urine | Phenylacetic Acid | 2.569597662 | 1.361542485 | Phenylalanine metabolism |
| AIA-Hot | Urine | Phenylpyruvate | 2.442241517 | 1.288205878 | Phenylalanine metabolism |
| AIA-Hot | Urine | Hippurate | 2.253015847 | 1.171857461 | Phenylalanine metabolism |
| AIA-Hot | Urine | Hypoxanthine | 0.46879196 | -1.09298027 | Purine metabolism |
| AIA-Hot | Urine | L-serine | 0.06227038 | -4.00531012 | Sphingolipid metabolism |
| AIA-Hot | Urine | Sphinganine | 8.302555194 | 3.053555409 | Sphingolipid metabolism |
| AIA-Hot | Urine | Ceramide (d18:1/12:0) | 2.44660438 | 1.290780834 | Sphingolipid metabolism |
| AIA-Hot | Urine | Androstenedione | 0.035752109 | -4.80582784 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Dehydroepiandrosterone | 0.196578382 | -2.34682342 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Androsterone | 0.128933709 | -2.9552986 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Progesterone | 0.199561593 | -2.325094 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Dihydrotestosterone | 0.19921094 | -2.32763122 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Pregnanolone | 2.296139891 | 1.19921054 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Pregnenolone | 8.051131646 | 3.009191579 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Cortisol | 2.114742703 | 1.080482144 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Corticosterone | 0.189808554 | -2.39738308 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Tetrahydrocortisol | 0.331638757 | -1.59231548 | Steroid hormone biosynthesis |
| AIA-Hot | Urine | Hypotaurine | 2.639179228 | 1.400089328 | Taurine and hypotaurine metabolism |
| AIA-Hot | Urine | Taurine | 0.047043756 | -4.40985294 | Taurine and hypotaurine metabolism |
| AIA-Hot | Urine | Hydroquinone | 2.673847718 | 1.418917303 | |
| AIA-Hot | Urine | Aniline | 5.60905543 | 2.48775784 | |
| AIA-Hot | Urine | Succinic Acid | 0.113926009 | -3.13383095 | |
| AIA-Hot | Urine | Threonine | 0.056767252 | -4.13879728 | |
| AIA-Hot | Urine | Nicotinic acid | 8.133289002 | 3.023838878 | |
| AIA-Hot | Urine | 4-Methylcatechol | 9.910368025 | 3.308938633 | |
| AIA-Hot | Urine | Benzyl Alcohol | 6.3729099 | 2.671952264 | |
| AIA-Hot | Urine | 5,6-Dihydrouracil | 0.305430436 | -1.71108426 | |
| AIA-Hot | Urine | Isoleucine | 3.916838119 | 1.969689504 | |
| AIA-Hot | Urine | Glutarate | 4.446894019 | 2.152798022 | |
| AIA-Hot | Urine | N,N-Dimethyl-1,4-Phenylenediamine | 2.257826228 | 1.174934455 | |
| AIA-Hot | Urine | 5-Valerolactone | 4.237056135 | 2.083062243 | |
| AIA-Hot | Urine | Nonanoate | 2.734816338 | 1.451443949 | |
| AIA-Hot | Urine | L-Homocysteine Thiolactone | 4.129844498 | 2.04608746 | |
| AIA-Hot | Urine | 4-Hydroxybenzaldehyde | 3.19516483 | 1.675890358 | |
| AIA-Hot | Urine | Mono-Methyl Glutarate | 0.20149746 | -2.31116644 | |
| AIA-Hot | Urine | 3-Methyl-2-Oxindole | 2.762815524 | 1.466139235 | |
| AIA-Hot | Urine | Heptanoic Acid | 4.004637826 | 2.001671773 | |
| AIA-Hot | Urine | Trans-Cinnamaldehyde | 3.009911704 | 1.589721166 | |
| AIA-Hot | Urine | Suberic Acid | 5.668115903 | 2.502869259 | |
| AIA-Hot | Urine | 6-Carboxyhexanoate | 0.173246851 | -2.52909896 | |
| AIA-Hot | Urine | D-(+)-Glucosamine | 0.291727392 | -1.77730724 | |
| AIA-Hot | Urine | N-Acetyl-L-Cysteine | 16.18121242 | 4.016247805 | |
| AIA-Hot | Urine | 4-Hydroxybenzaldehyde | 9.813788521 | 3.294810183 | |
| AIA-Hot | Urine | Meso-Tartaric Acid | 2.138434115 | 1.096554758 | |
| AIA-Hot | Urine | Pantolactone | 0.076860272 | -3.70161812 | |

| | | | | | |
|---------|-------|--------------------------------------|-------------|-------------|-------------------|
| AIA-Hot | Urine | Indole-3-Acetic Acid | 2.042865901 | 1.030594505 | |
| AIA-Hot | Urine | Carnitine | 3.205074038 | 1.680357684 | |
| AIA-Hot | Urine | Phosphorylcholine | 2.427076115 | 1.279219353 | |
| AIA-Hot | Urine | Azelaic Acid | 0.277582461 | -1.84901168 | |
| AIA-Hot | Urine | 1-Hydroxy-2-Naphthoate | 4.511253056 | 2.173528215 | |
| AIA-Hot | Urine | Glucuronic Acid | 0.480368567 | -1.05778634 | |
| AIA-Hot | Urine | Ascorbate | 0.48401382 | -1.04687985 | |
| AIA-Hot | Urine | D-Gulonic Acid Gama-Lactone | 0.37980118 | -1.39668371 | |
| AIA-Hot | Urine | 1-Methyl-6,7-Dihydroxy-1,2,3,4-Tetra | 2.95857316 | 1.564901571 | |
| AIA-Hot | Urine | 2-Acetamido-2-Deoxy-Beta-D-Glucos | 0.332403636 | -1.58899193 | |
| AIA-Hot | Urine | Indole-3-Acetaldehyde | 2.087995174 | 1.062118377 | |
| AIA-Hot | Urine | Methyl Indole-3-Acetate | 2.013632644 | 1.00980051 | |
| AIA-Hot | Urine | N-Acetyl-L-Phenylalanine | 0.120533272 | -3.05249666 | |
| AIA-Hot | Urine | 3-Dehydroshikimate | 0.155273296 | -2.68711836 | |
| AIA-Hot | Urine | 3-Methoxytyrosine | 0.184629026 | -2.43729871 | |
| AIA-Hot | Urine | Gluconic Acid | 2.065657947 | 1.046601378 | |
| AIA-Hot | Urine | Indole-3-Acetamide | 0.160798996 | -2.63666969 | |
| AIA-Hot | Urine | D-Pantothenic Acid | 0.016419503 | -5.92844577 | |
| AIA-Hot | Urine | Acetylglucosamine | 2.338322402 | 1.225473859 | |
| AIA-Hot | Urine | Lipoamide | 5.346355192 | 2.418555688 | |
| AIA-Hot | Urine | S-Carboxymethyl-L-Cysteine | 0.365937692 | -1.45033007 | |
| AIA-Hot | Urine | Nalpha-Acetyl-L-Lysine | 2.18721332 | 1.129093934 | |
| AIA-Hot | Urine | Ferulate | 0.01262304 | -6.30779681 | |
| AIA-Hot | Urine | Sn-Glycero-3-Phosphocholine | 0.262045838 | -1.9321089 | |
| AIA-Hot | Urine | 2'-Deoxyguanosine | 0.012572563 | -6.31357739 | Purine metabolism |
| AIA-Hot | Urine | Adenosine | 0.012572563 | -6.31357739 | Purine metabolism |
| AIA-Hot | Urine | Deoxyuridine | 2.523399475 | 1.335368615 | |
| AIA-Hot | Urine | 5'-Deoxyadenosine | 0.326125918 | -1.61649899 | |
| AIA-Hot | Urine | 10E-Heptadecenoic Acid | 0.084533656 | -3.56433034 | Purine metabolism |
| AIA-Hot | Urine | Nandrolone | 2.954798741 | 1.563059868 | |
| AIA-Hot | Urine | Retinol | 2.367473237 | 1.243348117 | |
| AIA-Hot | Urine | Guanosine | 0.149516904 | -2.74161949 | Purine metabolism |
| AIA-Hot | Urine | N-Acetylneuraminate | 0.398791154 | -1.32629469 | |
| AIA-Hot | Urine | Inosine | 0.023228621 | -5.42795266 | Purine metabolism |
| AIA-Hot | Urine | 11Z-Eicosenoic Acid | 0.376802829 | -1.4081183 | |
| AIA-Hot | Urine | cAMP | 0.300084028 | -1.73656156 | |
| AIA-Hot | Urine | Leukotriene B4 | 0.154041837 | -2.69860586 | |
| AIA-Hot | Urine | 2'-Deoxyadenosine 5'-Diphosphate | 0.29679473 | -1.75246262 | Purine metabolism |
| AIA-Hot | Urine | Geranylgeranyl Pyrophosphate | 0.21744592 | -2.20127146 | |
| AIA-Hot | Urine | PE(O-18:0/0:0) | 4.995015709 | 2.320489215 | |
| AIA-Hot | Urine | Dihydrofolate | 0.212742014 | -2.23282312 | |
| AIA-Hot | Urine | Taurodeoxycholic Acid | 3.700603069 | 1.887760399 | |
| AIA-Hot | Urine | LysoPC(18:0/0:0) | 4.756729071 | 2.249969856 | |
| AIA-Hot | Urine | Protoporphyrin | 0.060312046 | -4.05141002 | |
| AIA-Hot | Urine | Nicotinic Acid Adenine Dinucleotide | 3.467244377 | 1.793789524 | |
| AIA-Hot | Urine | SM(d18:1/18:0) | 0.371428486 | -1.42884363 | |

Table S5.4. Significantly differential metabolites of serum samples from AIA-Hot rats detected by LC/MS

| Groups | Samples | Description | AIA-Hot/Con | Log2FC | Pathways |
|---------|---------|---------------------------------------|-------------|-------------|--|
| AIA-Hot | Serum | S-(5'-Adenosyl)-L-Methionine | 0.341507605 | -1.55001039 | Arginine and proline metabolism |
| AIA-Hot | Serum | Citrate | 0.091899588 | -3.44379779 | Citrate cycle (TCA cycle) |
| AIA-Hot | Serum | Glutamine | 0.036014934 | -4.79526094 | D-Glutamine and D-glutamate metabolism |
| AIA-Hot | Serum | N-Acetyl-DL-Glutamic Acid | 0.085949572 | -3.54036573 | D-Glutamine and D-glutamate metabolism |
| AIA-Hot | Serum | Phenylacetaldehyde | 0.060179822 | -4.05457635 | Phenylalanine metabolism |
| AIA-Hot | Serum | 3-O-Sulfogalactosylceramide (d18:1/2) | 0.335489238 | -1.57566161 | Sphingolipid metabolism |
| AIA-Hot | Serum | Galactosylceramide (d18:1/16:0) | 2.247247372 | 1.168158942 | Sphingolipid metabolism |
| AIA-Hot | Serum | Androsterone | 0.025904467 | -5.2706553 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Dehydroepiandrosterone | 0.16542747 | -2.59572927 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Tetrahydrodeoxycorticosterone | 0.450009036 | -1.15197413 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Pregnenolone | 0.051423386 | -4.28143158 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Tetrahydrodeoxycortisol | 0.3733819 | -1.4212761 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | 17-hydroxypregnenolone | 0.009701071 | -6.68764028 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Dehydroepiandrosterone sulfate | 0.028546136 | -5.13056069 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Cortisol | 68.74960866 | 6.103279596 | Steroid hormone biosynthesis |
| AIA-Hot | Serum | Menaquinone | 0.012833939 | -6.28389215 | Ubiquinone biosynthesis |
| AIA-Hot | Serum | Phylloquinone | 0.012826729 | -6.28470293 | Ubiquinone biosynthesis |
| AIA-Hot | Serum | 3-Methyl-2-Oxovaleric Acid | 0.246900986 | -2.0179955 | |
| AIA-Hot | Serum | Hexanoate | 0.082109664 | -3.60630416 | |
| AIA-Hot | Serum | Proline | 0.355276248 | -1.49298686 | |
| AIA-Hot | Serum | S-Carboxymethyl-L-Cysteine | 0.486953058 | -1.03814539 | |
| AIA-Hot | Serum | N,N-Dimethyl-1,4-Phenylenediamine | 0.194795837 | -2.35996525 | |
| AIA-Hot | Serum | Pyridines-2,3-Dicarboxylate | 0.1633833 | -2.61366756 | |
| AIA-Hot | Serum | L-Anserine | 6.718563555 | 2.748152814 | |
| AIA-Hot | Serum | Uridine | 0.334721973 | -1.57896483 | |
| AIA-Hot | Serum | Myristic Acid | 0.467558479 | -1.09678128 | |
| AIA-Hot | Serum | Quinate | 0.332870835 | -1.58696562 | |
| AIA-Hot | Serum | Caffeine | 0.202977456 | -2.30060859 | |
| AIA-Hot | Serum | O-Succinyl-L-Homoserine | 0.009647507 | -6.6956281 | |
| AIA-Hot | Serum | 9Z-Hexadecenoic Acid | 0.039263951 | -4.67065085 | |
| AIA-Hot | Serum | 9E-Octadecenoic Acid | 0.079611808 | -3.65087377 | |
| AIA-Hot | Serum | Retinol | 0.031845181 | -4.97278112 | |
| AIA-Hot | Serum | Geranyl Pyrophosphate | 0.395528879 | -1.33814506 | |
| AIA-Hot | Serum | Rac-Glycerol 1-Myristate | 0.061723765 | -4.01803013 | |
| AIA-Hot | Serum | MG (16:0/0:0/0:0) | 0.063881237 | -3.96846394 | |
| AIA-Hot | Serum | D-(+)-Cellobiose | 0.153716799 | -2.70165326 | |
| AIA-Hot | Serum | Amylose | 0.067385014 | -3.89142842 | |
| AIA-Hot | Serum | Farnesyl Diphosphate | 0.040490844 | -4.62626046 | |
| AIA-Hot | Serum | Desmosterol | 0.008078883 | -6.95162853 | |
| AIA-Hot | Serum | Beclomethasone | 0.24175769 | -2.04836631 | |
| AIA-Hot | Serum | 2-Arachidonoylglycerol | 0.00212198 | -8.88037343 | |
| AIA-Hot | Serum | Cholic Acid | 0.223824238 | -2.15956182 | |
| AIA-Hot | Serum | LPE 16:1 | 0.347283361 | -1.5258148 | |
| AIA-Hot | Serum | LPC 18:0 | 0.289924559 | -1.78625055 | |
| AIA-Hot | Serum | Taurocholic Acid | 0.164253952 | -2.60600001 | |
| AIA-Hot | Serum | Protoporphyrin | 0.247168729 | -2.01643186 | |
| AIA-Hot | Serum | Uridine 5'-Diphosphoglucuronic Acid | 0.036345867 | -4.78206488 | |
| AIA-Hot | Serum | PS 28:2 | 0.001490531 | -9.3899578 | |
| AIA-Hot | Serum | SM(d18:1/16:0) | 0.321068041 | -1.63904903 | |
| AIA-Hot | Serum | PCe 34:1 | 0.120705248 | -3.0504397 | |
| AIA-Hot | Serum | PEp 36:1 | 0.45073195 | -1.14965838 | |
| AIA-Hot | Serum | PC 34:2 | 0.305172607 | -1.71230263 | |
| AIA-Hot | Serum | PE 38:6-A | 0.364154395 | -1.45737784 | |
| AIA-Hot | Serum | SM(d18:1/18:0) | 0.34730691 | -1.52571698 | |
| AIA-Hot | Serum | PC 36:1 | 0.244286036 | -2.0333567 | |
| AIA-Hot | Serum | PCe 36:4 | 0.306954399 | -1.70390375 | |
| AIA-Hot | Serum | PC 38:0 (19:0/19:0) | 4.880924848 | 2.287154538 | |
| AIA-Hot | Serum | FAD | 0.417088056 | -1.2615761 | |
| AIA-Hot | Serum | C22DH Sphingomyelin | 0.186360537 | -2.42383171 | |
| AIA-Hot | Serum | PCe 36:3 | 2.831834888 | 1.50173715 | |
| AIA-Hot | Serum | PC 38:7 | 0.358681796 | -1.47922357 | |
| AIA-Hot | Serum | PG 38:3 | 0.41592409 | -1.26560785 | |
| AIA-Hot | Serum | PC 40:6 | 0.386014985 | -1.37327124 | |