

Attachment 7

Laboratory Assessments

**Attachment 7 – NHANES Laboratory Assessments
Attachment 7a - Laboratory Analytes by Age Group**

| Test Name | Sample | Matrix |
|---|---------------|---------------|
| Ages 1-2 | | |
| Complete Blood Count | Full | Whole blood |
| C-reactive Protein (CRP) | Full | Serum |
| Erythrocyte Folate | Full | Whole blood |
| Ferritin | Full | Serum |
| Hepatitis B Surface Antibody (Anti-HBs) 2 years and older | Full | Serum |
| Serum Total and Folate Forms | Full | Serum |
| Transferrin Receptor | Full | Serum |
| Vitamin D | Full | Serum |
| Ages 3-5 | | |
| Complete Blood Count | Full | Whole blood |
| C-reactive Protein (CRP) | Full | Serum |
| Erythrocyte Folate | Full | Whole blood |
| Ferritin | Full | Serum |
| Hepatitis Profile** | Full | Serum |
| Serum Total and Folate Forms | Full | Serum |
| Transferrin Receptor | Full | Serum |
| Urine Flow Rate | Full | Urine |
| Vitamin D | Full | Serum |
| Ages 6-11 | | |
| Albumin/Creatinine | Full | Urine |
| Cholesterol (Total)/ High Density Lipoprotein Cholesterol (HDL) | Full | Serum |
| Complete Blood Count | Full | Whole blood |
| Estradiol | Full | Serum |
| Erythrocyte Folate | Full | Whole blood |
| Fluoride, plasma | Full | Plasma EDTA |
| Fluoride, urine | Full | urine |
| Fluoride, water | Full | Water |
| Hepatitis Profile** | Full | Serum |
| Serum Total and Folate Forms | Full | Serum |
| Sex hormone binding globin | Full | Serum |
| Testosterone | Full | Serum |
| Urine flow rate | Full | Urine |
| Vitamin D | Full | Serum |
| Ages 12-19 | | |
| Albumin/Creatinine | Full | Urine |
| Biochemistry Profile* | Full | Serum |
| Chlamydia trachomatis (14-19 years) | Full | Urine |
| Cholesterol (Total)/ High Density Lipoprotein Cholesterol (HDL) | Full | Serum |
| Complete Blood Count | Full | Whole blood |
| C-reactive Protein (CRP) (females) | Full | Serum |
| Erythrocyte Folate | Full | Whole blood |
| Estradiol | Full | Serum |
| Ferritin (females) | Full | Serum |
| Fluoride, plasma | Full | Plasma EDTA |
| Fluoride, urine | Full | urine |
| Fluoride, water | Full | Water |

| Test Name | Sample | Matrix |
|--|----------|-------------|
| Glucose (Oral Glucose Tolerance Test) | One-half | Plasma Na2F |
| Glucose, fasting | One-half | Plasma Na2F |
| Glycohemoglobin | Full | Whole blood |
| Hepatitis Profile** | Full | Serum |
| Herpes Simplex Virus (HSV) (14-19 years) | Full | Serum |
| Human Immunodeficiency Virus Antibody (18-19 years) | Full | Serum |
| Human Papilloma Virus (14-19 years) | Full | Serum |
| Human Papilloma Virus (Females and Males 14-19 years) | Full | Swab |
| Human Papilloma Virus (14-19 years) | Full | Rinse |
| Insulin | One-half | Serum |
| Serum Total and Folate Forms | Full | Serum |
| Sex hormone binding globulin | Full | Serum |
| Testosterone | Full | Serum |
| Transferrin Receptor (females) | Full | Serum |
| Triglycerides/Low Density Lipoprotein Cholesterol/Apolipoprotein B | One-half | Serum |
| Trichomonas vaginalis (14-19 years) | Full | Urine |
| Urine flow rate | Full | Serum |
| Vitamin D | Full | Serum |
| Ages 20 and older | | |
| Albumin/Creatinine | Full | Urine |
| Biochemistry Profile* | Full | Serum |
| Chlamydia trachomatis (20-39 years) | Full | Urine |
| Cholesterol (Total)/ High Density Lipoprotein Cholesterol (HDL) | Full | Serum |
| Complete Blood Count | Full | Whole blood |
| C-reactive Protein (CRP) (females 20-49yrs) | Full | Serum |
| Erythrocyte Folate | Full | Whole blood |
| Estradiol | Full | Serum |
| | | |
| Ferritin (females 20-49 yrs) | Full | Serum |
| Glucose (Oral Glucose Tolerance Test) | One-half | Plasma Na2F |
| Glucose, fasting | One-half | Plasma Na2F |
| Glycohemoglobin | Full | Whole blood |
| Hepatitis Profile ** | Full | Serum |
| Herpes Simplex Virus (HSV) (20-49 years) | Full | Serum |
| Human Immunodeficiency Virus antibody (20-59 years) | Full | Serum |
| Human Papilloma Virus (20-59 years) | Full | Serum |
| Human Papilloma Virus (Females and Males 20-59 years) | Full | Swab |
| Human Papilloma Virus (20-69 years) | Full | Rinse |
| Insulin | One-half | Serum |
| Serum Total and Folate Forms | Full | Serum |
| Sex hormone binding globulin | Full | Serum |
| Testosterone | Full | Serum |
| Transferrin Receptor (females 20-49 yrs) | Full | Serum |
| Triglycerides/Low Density Lipoprotein Cholesterol/Apolipoprotein B | One-half | Serum |
| Trichomonas vaginalis (20-59 years) | Full | Urine |
| Urine flow rate | Full | Urine |
| Vitamin D | Full | Serum |
| *Biochemistry Profile | | |
| Albumin | | |

| Test Name | Sample | Matrix |
|---|--------|--------|
| Alkaline phosphatase | | |
| Aspartate aminotransferase (AST) | | |
| Alanine aminotransferase (ALT) | | |
| Blood urea nitrogen (BUN) | | |
| Bicarbonate (HCO ₃) | | |
| Total calcium | | |
| Total cholesterol | | |
| Chloride | | |
| CPK | | |
| Creatinine | | |
| Globulin | | |
| Glucose | | |
| v-glutamyltransferase (GGT) | | |
| Iron | | |
| Potassium | | |
| Lactate dehydrogenase (LDH) | | |
| Sodium | | |
| Osmolality | | |
| Phosphorus | | |
| Total Bilirubin | | |
| Total protein | | |
| Triglycerides | | |
| Uric acid | | |
| **Hepatitis Profile | | |
| Hepatitis A antibody (Anti-HAV) | | |
| Hepatitis B Core antibody (Anti-HBc) | | |
| Hepatitis B Surface Antibody (Anti-HBs) | | |
| Hepatitis B Surface Antigen (HbsAg) | | |
| Hepatitis C Antibody (Anti-HCV) | | |
| Hepatitis C HCV genotype | | |
| Hepatitis C Ribonucleic Acid (HCV-RNA) | | |
| Hepatitis D antibody (anti-HDV) | | |
| Hepatitis E antibody (anti-HEV) | | |

Attachment 7 – NHANES Laboratory Assessments Attachment 7b - Laboratory Analytes by Survey Year

This list of chemicals represents those chemicals currently or planned as biomonitoring measurements by CDC. A blank cell indicates that the analyte will not be measured or reported in that NHANES cycle. WD=results were withdrawn d=cycled out (not measured)

| Chemical / Metabolite Name | Matrix | 03-04 | 05-06 | 07-08 | 09-10 | 11-12 | 13-14 | 15-16 | Branch | Lab Contact |
|---|-------------|---------|-----------------|-------|-------|-------|-------|-------|--------|-------------|
| Adducts of Hemoglobin | | | | | | | | | | |
| Acrylamide | packed rbc | • | • | • | • | | • | • | CCB | Vesper |
| Glycidamide | packed rbc | • | • | • | • | | • | • | CCB | Vesper |
| Ethylene Oxide | packed rbc | | | | | | • | • | CCB | Vesper |
| Formaldehyde | packed rbc | | | | | | • | • | CCB | Vesper |
| Antiseptics | | | | | | | | | | |
| Butyl paraben | urine | | • | • | • | • | • | • | OAT | Ye |
| Ethyl paraben | urine | | • | • | • | • | • | • | OAT | Ye |
| Methyl paraben | urine | | • | • | • | • | • | • | OAT | Ye |
| Propyl paraben | urine | | • | • | • | • | • | • | OAT | Ye |
| Triclocarban | urine | | | | | | • | • | OAT | Ye |
| Triclosan | urine | • | • | • | • | • | • | • | OAT | Ye |
| Disinfection By-Products | | | | | | | | | | |
| Bromodichloromethane | whole blood | • | • | • | • | • | | | TVB | Silva |
| Bromodichloromethane | water | • | • | • | • | | | | TVB | Silva |
| Dibromochloromethane (Chlorodibromomethane) | whole blood | • | • | • | • | • | | | TVB | Silva |
| Dibromochloromethane (Chlorodibromomethane) | water | • | • | • | • | | | | TVB | Silva |
| Tribromomethane (Bromoform) | whole blood | • | • | • | • | • | | | TVB | Silva |
| Tribromomethane (Bromoform) | water | • | • | • | • | | | | TVB | Silva |
| Trichloromethane (Chloroform) | whole blood | • | • | • | • | • | | | TVB | Silva |
| Trichloromethane (Chloroform) | water | • | • | • | • | | | | TVB | Silva |
| Environmental Phenols | | | | | | | | | | |
| Bisphenol A | urine | • | • | • | • | • | • | • | OAT | Ye |
| Bisphenol F | urine | | | | | | • | • | OAT | Ye |
| Bisphenol S | urine | | | | | | • | • | OAT | Ye |
| Benzophenone-3 | urine | • | • | • | • | • | • | • | OAT | Ye |
| 4-tert-Octyl phenol | urine | WD | • | • | • | | | | OAT | Ye |
| Fungicides and Metabolites | | | | | | | | | | |
| Ethylenethiourea (ETU) | urine | • | • | • | | | | | OAT | Calafat |
| ortho-Phenylphenol | urine | • | • | • | • | | | | OAT | Calafat |
| Pentachlorophenol | serum | | | Pool | Pool | Pool | Pool | | OAT | Sjodin |
| Pentachlorophenol | urine | • | | | | | | | OAT | Calafat |
| Propylenethiourea (PTU) | urine | • | • | • | | | | | OAT | Calafat |
| Herbicides and Metabolites | | | | | | | | | | |
| Atrazine | urine | • WD | Not measured | • | | | | | OAT | Valentin |

| | | | | | | | | | | | |
|--|-------|-------------|-----------------|---|---|---|---|---|--|-----|----------|
| Atrazine mercapturate | urine | • WD | Not measured | • | | | | | | OAT | Valentin |
| Desethyl atrazine | urine | • WD | Not measured | • | | | | | | OAT | Valentin |
| Desethyl atrazine mercapturate | urine | • WD | Not measured | • | | | | | | OAT | Valentin |
| Desisopropyl atrazine | urine | • WD | Not measured | • | | | | | | OAT | Valentin |
| Desisopropyl atrazine mercapturate | urine | | Not measured | • | | | | | | OAT | Valentin |
| Diaminochlorotriazine | urine | • WD | Not measured | • | | | | | | OAT | Valentin |
| 2,4-Dichlorophenoxyacetic acid | urine | • WD | Not measured | • | • | • | • | • | | OAT | Valentin |
| 2,4,5-Trichlorophenoxyacetic acid | urine | • WD | Not measured | • | • | • | • | • | | OAT | Valentin |
| Herbicides: Substituted Ureas | | | | | | | | | | | |
| Bensulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Chlorsulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Ethametsulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Foramsulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Halosulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Mesosulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Metsulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Nicosulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Oxasulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Primisulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Prosulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Rimsulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Sulfometuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Sulfosulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Thifensulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Triasulfuron | urine | • | • | • | | | | | | OAT | Calafat |
| Triflusulfuron-methyl | urine | • | • | • | | | | | | OAT | Calafat |
| Insect Repellent | | | | | | | | | | | |
| N,N-Diethyl- <i>meta</i> -toluamide (DEET) | urine | • W D | Not measured | • | • | • | • | • | | OAT | Valentin |
| 3-(diethylcarbamoyl)benzoic acid (DEET acid) | urine | | Not measured | • | • | • | • | • | | OAT | Valentin |
| N-ethyl-3-methyl-benzamide (Desethyl DEET) | urine | | Not measured | • | • | • | • | • | | OAT | Valentin |
| N,N-diethyl-3-(hydroxymethyl)benzamide (Desethyl hydroxy DEET) | urine | | Not measured | • | • | • | • | • | | OAT | Valentin |
| Insecticides and Pesticides | | | | | | | | | | | |
| Organochlorine Pesticides | | | | | | | | | | | |
| Aldrin | serum | • | | | | | | | | OAT | Sjodin |
| Dieldrin | serum | • | | | | | | | | OAT | Sjodin |

| | | | | | | | | | | | |
|--|-------|-------------|-----------------|----------------------|------|------|------|------|------|-----|----------|
| Oxychlorane | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Heptachlor Epoxide | serum | • | | | | | | | | OAT | Sjodin |
| <i>trans</i> -Nonachlor | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| <i>p,p'</i> -DDT | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| <i>p,p'</i> -DDE | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| <i>o,p'</i> -DDT | serum | • | | | | | | | | OAT | Sjodin |
| Endrin | serum | • | | | | | | | | OAT | Sjodin |
| Hexachlorobenzene | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| <i>beta</i> -Hexachlorocyclohexane | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| <i>gamma</i> -Hexachlorocyclohexane | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Mirex | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,4,5-Trichlorophenol | urine | • | • | • | • | | | | | OAT | Ye |
| 2,4,6-Trichlorophenol | urine | • | • | • | • | | | | | OAT | Ye |
| Organophosphorus Insecticides: Dialkyl Phosphate Metabolites | | | | | | | | | | | |
| Dimethylphosphate | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| Dimethylthiophosphate | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| Dimethyldithiophosphate | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| Diethylphosphate | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| Diethylthiophosphate | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| | urine | • | • | • | • | • | • | • | • | OAT | Valentin |
| Organophosphorus Insecticides: Specific Pesticides and Metabolites | | | | | | | | | | | |
| Malathion dicarboxylic acid | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| 3,5,6-Trichloro-2-pyridinol (TCPy) | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| 2-diethylamino-6-methyl pyrimidin-4-ol | urine | • W D | not measured | | - | - | - | - | - | OAT | Valentin |
| 2-Isopropyl-4-methyl-6-hydroxypyrimidine | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| <i>para</i> -Nitrophenol | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| Dimethoate | urine | • | • | • | | | | | | OAT | Calafat |
| Omethoate | urine | • | • | • | | | | | | OAT | Calafat |
| Acephate | urine | • | • | • | | | | | | OAT | Calafat |
| Methamidaphos | urine | • | • | • | | | | | | OAT | Calafat |
| Pyrethroid Pesticides | | | | | | | | | | | |
| <i>cis</i> -3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (<i>cis</i> -DCCA) | urine | • W D | not measured | metho d in dev | • | • | • | • | • | OAT | Valentin |
| <i>trans</i> -3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (<i>trans</i> -DCCA) | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| 3-Phenoxybenzoic acid (3PBA) | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| 4-Fluoro-3-phenoxybenzoic acid (4F3PBA) | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |
| <i>cis</i> -3-(2,2-Dibromovinyl)-2,2- | urine | • W D | not measured | • | • | • | • | • | • | OAT | Valentin |

| | | | | | | | | | | | |
|---|-------------|---------|---|---|---|---|---|---|---|------|----------|
| dimethylcyclopropane carboxylic acid (cis-DBCA) | | | d | | | | | | | | |
| Other Pesticide Metabolites | | | | | | | | | | | |
| Carbofuranphenol | urine | • | | | | | | | | OAT | Calafat |
| 2,4-Dichlorophenol | urine | • WD | • | • | • | • | • | • | • | OAT | Ye |
| 2,5-Dichlorophenol | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| 2-Isopropoxyphenol | urine | • | | | | | | | | OAT | Calafat |
| Metals and Metalloids | | | | | | | | | | | |
| Antimony | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Arsenic (total) | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Arsenic (V) acid | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Arsenobetaine | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Arsenocholine | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Arsenous (III) acid | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Dimethylarsinic acid | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Monomethylarsonic acid | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Trimethylarsine oxide | urine | • | • | • | • | • | | | | IRAT | Caldwell |
| Barium | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Beryllium | urine | • | • | • | • | | | | | IRAT | Caldwell |
| Cadmium | whole blood | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Cadmium | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Cesium | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Chromium | Whole blood | | | | | | | | • | IRAT | Caldwell |
| Cobalt | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Cobalt | Whole blood | | | | | | | | • | IRAT | Caldwell |
| Copper | serum | | | | | • | • | • | • | IRAT | Caldwell |
| Lead | whole blood | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Lead | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Manganese | whole blood | | | | | • | • | • | • | IRAT | Caldwell |
| Manganese | urine | | | | | • | • | • | • | IRAT | Caldwell |
| Mercury (total) | whole blood | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Mercury (inorganic) | whole blood | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Mercury (ethyl) | whole blood | | | | | • | • | • | • | IRAT | Caldwell |
| Mercury (methyl) | whole blood | | | | | • | • | • | • | IRAT | Caldwell |
| Mercury | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Molybdenum | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Platinum | urine | • | • | • | • | d | | | | IRAT | Caldwell |
| Selenium | whole blood | | | | | • | • | • | • | IRAT | Caldwell |
| Selenium | serum | | | | | • | • | • | • | IRAT | Caldwell |
| Strontium | urine | | | | | • | • | • | • | IRAT | Caldwell |
| Thallium | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Tin | urine | | | | | • | • | • | • | IRAT | Caldwell |
| Tungsten | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Uranium | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |
| Zinc | serum | | | | | • | • | • | • | IRAT | Caldwell |
| Iodine | urine | • | • | • | • | • | • | • | • | IRAT | Caldwell |

| Perchlorate and Other Anions | | | | | | | | | | | |
|--|-------|---|---|---|---|---|---|---|---|-----|-------|
| Perchlorate | urine | • | • | • | • | • | • | • | • | TVB | Morel |
| Perchlorate | water | | • | • | • | | | | | TVB | Morel |
| Thiocyanate | urine | | • | • | • | • | • | • | | TVB | Morel |
| Nitrate | urine | | • | • | • | • | • | • | | TVB | Morel |
| Nitrate | water | | • | • | • | | | | | TVB | Morel |
| Fluoride | urine | | | | | | | | • | TVB | Morel |
| Iodide | water | • | • | • | | | | | | TVB | Morel |
| Perfluorinated Compounds | | | | | | | | | | | |
| Perfluorobutane sulfonic acid (PFBS) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorodecanoic acid (PFDeA) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorododecanoic acid (PFDoA) | serum | • | • | • | • | • | | | | OAT | Ye |
| Perfluoroheptanoic acid (PFHpA) | serum | • | • | • | • | • | | | | OAT | Ye |
| Perfluorohexane sulfonic acid (PFHxS) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorononanoic acid (PFNA) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorooctanoic acid (PFOA) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorooctane sulfonic acid (PFOS) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluorooctane sulfonamide (PFOSA) | serum | • | • | • | • | • | | | | OAT | Ye |
| 2-(N-Ethyl- Perfluorooctane sulfonamido) acetic acid (Et-PFOSA-AcOH) | serum | • | • | • | • | • | | | | OAT | Ye |
| 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (Me-PFOSA-AcOH) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| Perfluoroundecanoic acid (PFUA) | serum | • | • | • | • | • | • | • | • | OAT | Ye |
| n-Perfluorooctanoic acid (n-PFOA) | serum | | | | | | | • | • | OAT | Ye |
| iso-Perfluorooctanoic acid (iso-PFOA) | serum | | | | | | | • | • | OAT | Ye |
| n-Perfluorooctane sulfonic (n-PFOS) | serum | | | | | | | • | • | OAT | Ye |
| iso-Perfluorooctane sulfonic acid mixture 1 (1-iso-PFOS) | serum | | | | | | | • | • | OAT | Ye |
| iso-Perfluorooctane sulfonic acid mixture 2 (2-iso-PFOS) | serum | | | | | | | • | • | OAT | Ye |
| Phthalate Metabolites and Phthalate Alternatives | | | | | | | | | | | |
| Mono-benzyl phthalate (MBzP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-iso-butyl phthalate (MiBP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-n-butyl phthalate (MnBP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-cyclohexyl phthalate (MCHP) | urine | • | • | • | • | | | | | OAT | Ye |
| Mono-ethyl phthalate (MEP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-2-ethylhexyl phthalate (MEHP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHPP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(2,7-dimethyl-7-carboxyheptyl) phthalate (MCNP) | urine | | | • | • | • | • | • | • | OAT | Ye |
| Mono-isononyl phthalate (MiNP) | urine | • | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(2,6-dimethyl-6-carboxyhexyl) phthalate (MCOP) | urine | | | • | • | • | • | • | • | OAT | Ye |

| | | | | | | | | | | |
|---|-------|---|------|------|------|---|------|---|-----|--------|
| Mono-methyl phthalate (MMP) | urine | • | • | • | • | • | • | • | OAT | Ye |
| Mono-(3-carboxypropyl) phthalate (MCP) | urine | • | • | • | • | • | • | • | OAT | Ye |
| Mono-n-octyl phthalate (MOP) | urine | • | • | • | • | | | | OAT | Ye |
| Cyclohexane 1,2-dicarboxylic acid mono hydroxy isononyl ester (MHNCH) | urine | | | | | • | • | • | OAT | Ye |
| Mono-2-hydroxyisobutyl phthalate (2OH-MHiBP) | urine | | | | | | • | • | OAT | Ye |
| Mono-2-hydroxybutyl phthalate (2-OH-MHBP) | urine | | | | | | • | • | OAT | Ye |
| Phytoestrogens | | | | | | | | | | |
| Daidzein | urine | • | • | • | • | | | | NBB | Ryback |
| Enterodiol | urine | • | • | • | • | | | | NBB | Ryback |
| Enterolactone | urine | • | • | • | • | | | | NBB | Ryback |
| Equol | urine | • | • | • | • | | | | NBB | Ryback |
| Genistein | urine | • | • | • | • | | | | NBB | Ryback |
| O-Desmethylangolensin | urine | • | • | • | • | | | | NBB | Ryback |
| Polybrominated Diphenyl Ethers and Brominated Biphenyl 153 | | | | | | | | | | |
| 2,2',4'-Tribromodiphenyl ether (BDE 17) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,4,4'-Tribromodiphenyl ether (BDE 28) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4'-Tetrabromodiphenyl ether (BDE 47) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,3',4,4'-Tetrabromodiphenyl ether (BDE 66) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4',5-Pentabromodiphenyl ether (BDE 99) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4',6-Pentabromodiphenyl ether (BDE 100) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',3,4,4',5,6'-Heptabromodiphenyl ether (BDE 183) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209) | serum | | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| 2,2',4,4',5,5'-Hexabromobiphenyl (BB 153) | serum | • | Pool | Pool | Pool | • | Pool | • | OAT | Sjodin |
| Polybrominated Dibenzo-p-dioxins | | | | | | | | | | |
| 1,2,3,4,6,7,8-Heptabromodibenzo-p-dioxin (HxBDD) | serum | | Pool | Pool | | | | | OAT | Sjodin |
| 1,2,3,4,7,8-and 1,2,3,6,7,8-Hexabromodibenzo-p-dioxin (HxBDD) | serum | | Pool | Pool | | | | | OAT | Sjodin |
| 1,2,3,7,8,9-Hexabromodibenzo-p-dioxin (HxBDD) | serum | | Pool | Pool | | | | | OAT | Sjodin |
| 1,2,3,7,8-Pentabromodibenzo-p-dioxin (PeBDD) | serum | | Pool | Pool | | | | | OAT | Sjodin |
| 2,3,7,8-Tetrabromodibenzo-p-dioxin (TBDD) | serum | | Pool | Pool | | | | | OAT | Sjodin |

| Polybrominated Dibenzofurans | | | | | | | | | | | |
|---|-------|---|------|------|------|------|------|------|------|-----|--------|
| 1,2,3,4,6,7,8-Heptabromodibenzofuran (HpBDF) | serum | | Pool | Pool | | | | | | OAT | Sjodin |
| 1,2,3,4,7,8-Hexabromodibenzofuran (HxBDF) | serum | | Pool | Pool | | | | | | OAT | Sjodin |
| 1,2,3,7,8-Pentabromodibenzofuran (PeBDF) | serum | | Pool | Pool | | | | | | OAT | Sjodin |
| 2,3,4,7,8-Pentabromodibenzofuran (PeBDF) | serum | | Pool | Pool | | | | | | OAT | Sjodin |
| 2,3,7,8-Tetrabromodibenzofuran (TBDF) | serum | | Pool | Pool | | | | | | OAT | Sjodin |
| Polychlorinated Dibenzo-<i>p</i>-dioxins | | | | | | | | | | | |
| 1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin (HpCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo- <i>p</i> -dioxin (OCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin (PeCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Polychlorinated Dibenzofurans | | | | | | | | | | | |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Dioxin-like Polychlorinated Biphenyls: Coplanar PCBs | | | | | | | | | | | |
| 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) | serum | | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 3,4,4',5'-Tetrachlorobiphenyl (PCB 81) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 3,3',4,4',5'-Pentachlorobiphenyl (PCB 126) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |

| Dioxin-like Polychlorinated Biphenyls: Mono-ortho-Substituted PCBs | | | | | | | | | | | |
|---|-------|---|------|------|------|------|------|------|------|-----|--------|
| 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,3',4,4'-Pentachlorobiphenyl (PCB 114) | serum | | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2',3,4,4',5-Pentachlorobiphenyl (PCB 123) | serum | | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Polychlorinated Biphenyls: Non-Dioxin-Like | | | | | | | | | | | |
| 2,4,4'-Trichlorobiphenyl (PCB 28) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,5'-Tetrachloro biphenyl (PCB 44) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',4,5'-Tetrachloro biphenyl (PCB 49) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',5,5'-Tetrachlorobiphenyl (PCB 52) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3',4,4'-Tetrachlorobiphenyl (PCB 66) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,4,4',5-Tetrachlorobiphenyl (PCB 74) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4,5'-Pentachlorobiphenyl (PCB 87) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',4,4',5-Pentachlorobiphenyl (PCB 99) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',4,5,5'-Pentachlorobiphenyl (PCB 101) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,3,3',4',6-Pentachlorobiphenyl (PCB 110) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 & 158) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4',5',6-Hexachlorobiphenyl (PCB 149) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |

| | | | | | | | | | | | |
|---|-------------|---|------|------|------|------|------|------|------|-----|----------|
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209) | serum | • | Pool | Pool | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Hydroxylated Polychlorinated Biphenyls | | | | | | | | | | | |
| 2,3,3',4',5-pentachloro-4-biphenylol (4-HO-CB107) (PCB 105+118) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4',5,5'-hexachloro-4-biphenylol (4-HO-CB146) (PCB 138+153) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 2,2',3,4',5,5',6'-heptachloro-4-biphenylol (4-HO-CB187) (PCB 187) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Polychlorinated Naphthalenes | | | | | | | | | | | |
| 1,2,3,4-Tetrachloronaphthalene (PCN 27) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,5,7- and 1,2,4,6,7-Pentachloronaphthalene (PNC 52 & 60) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,5,7- and 1,2,3,5,6,8-Hexachloronaphthalene (PNC 64 & 68) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,6,7- and 1,2,3,5,6,7-Hexachloronaphthalene (PNC 66 & 67) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,5,6,7-Heptachloronaphthalene (PCN 73) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| 1,2,3,4,5,6,7,8-Octachloronaphthalene (PCN 75) | serum | | | | Pool | Pool | Pool | Pool | Pool | OAT | Sjodin |
| Polycyclic Aromatic Hydrocarbons | | | | | | | | | | | |
| 2-Hydroxyfluorene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 3-Hydroxyfluorene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 9-Hydroxyfluorene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 1-Hydroxyphenanthrene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 2-Hydroxyphenanthrene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 3-Hydroxyphenanthrene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 4-Hydroxyphenanthrene | urine | • | • | | | | | | | OAT | Calafat |
| 1-Hydroxypyrene | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 1-Hydroxynaphthalene (1-Naphthol) | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| 2-Hydroxynaphthalene (2-Naphthol) | urine | • | • | • | • | • | • | • | • | OAT | Calafat |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| Benzene | whole blood | • | • | • | • | • | • | • | • | TVB | Chambers |
| Chlorobenzene | whole blood | • | • | • | • | • | • | • | • | TVB | Chambers |

| | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|-----|----------|
| 1,2-Dichlorobenzene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| 1,3-Dichlorobenzene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| 1,4-Dichlorobenzene (Paradichlorobenzene) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| 1,2-dibromo-3-chloropropane (DBCP) | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 2,5-Dimethylfuran | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Ethylbenzene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Dichloromethane (Methylene chloride) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Trichloroethene (Trichloroethylene) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Tetrachloroethene (Perchloroethylene) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Dibromomethane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 1,1-Dichloroethane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 1,2-Dichloroethane (Ethylene dichloride) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| 1,1-Dichloroethene (Vinylidene chloride) | whole blood | • | • | • | • | • | | | TVB | Chambers |
| cis-1,2-Dichloroethene | whole blood | • | • | • | • | • | | | TVB | Chambers |
| trans-1,2-Dichloroethene | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 1,2-Dichloropropane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 1,1,1-Trichloroethane (Methyl chloroform) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| 1,1,2-Trichloroethane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| 1,1,2,2-Tetrachloroethane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| Tetrachloromethane (Carbon tetrachloride) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Hexachloroethane | whole blood | • | • | • | • | • | | | TVB | Chambers |
| Methyl-tert-Butyl Ether (MTBE) | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Methyl-tert-Butyl Ether (MTBE) | water | • | • | • | • | | | | TVB | Chambers |
| Nitrobenzene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Styrene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Toluene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| m-/p-Xylene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| o-Xylene | whole blood | • | • | • | • | • | • | • | TVB | Chambers |
| Cumene/Isopropylbenzene | whole blood | | | • | • | • | • | • | TVB | Chambers |
| 1,2-Dibromoethane | whole blood | | | • | • | • | • | • | TVB | Chambers |
| 1,4-Dioxane | whole blood | | | • | • | • | • | • | TVB | Chambers |
| Furan | whole blood | | | • | • | • | • | • | TVB | Chambers |
| n-Hexane | whole blood | | | • | • | • | • | • | TVB | Chambers |
| Nitromethane | whole blood | | | • | • | • | | | TVB | Chambers |
| 1,1,1,2-Tetrachloroethane | whole blood | | | • | • | • | • | • | TVB | Chambers |
| 1,2,3-Trichloropropane | whole blood | | | • | • | • | • | • | TVB | Chambers |
| AAA-Trifluorotoluene/ α,α,α -Trifluorotoluene | whole blood | | | | | | • | • | TVB | Chambers |
| Benzonitrile | whole blood | | | | | | • | • | TVB | Chambers |
| 1-Bromopropane/Propyl bromide | whole blood | | | | | | • | • | TVB | Chambers |
| Chloroethane | whole blood | | | | | | • | • | TVB | Chambers |
| Cyclohexane | whole blood | | | | | | • | • | TVB | Chambers |
| Ethyl acetate | whole blood | | | | | | • | • | TVB | Chambers |
| Heptane | whole blood | | | | | | • | • | TVB | Chambers |

| | | | | | | | | | | | | |
|--|-------------|--|---|--|--|--|--|---|---|-----|----------|-------|
| Methyl isobutyl ketone | whole blood | | | | | | | • | • | TVB | Chambers | |
| Methylcyclopentane | whole blood | | | | | | | • | • | TVB | Chambers | |
| Octane | whole blood | | | | | | | • | • | TVB | Chambers | |
| Tetrahydrofuran | whole blood | | | | | | | • | • | TVB | Chambers | |
| Vinyl bromide | whole blood | | | | | | | • | • | TVB | Chambers | |
| Volatile Organic Compound Metabolites (VOC metabolites) | | | | | | | | | | | | |
| N-Acetyl-S-(2-carbamylethyl)-L-cysteine (AAMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (AMCA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| 2-Aminothiazoline-4-carboxylic acid (ATCA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(benzyl)-L-cysteine (BMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(n-propyl)-L-cysteine (BPMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2-carboxyethyl)-L-cysteine (CEMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-acetyl-S-(1-cyano-2-hydroxyethyl)-L-cysteine (CYHA) | urine | | • | | | | | | | • | TVB | Alwis |
| N-Acetyl-S-(2-cyanoethyl)-L-cysteine (CYMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (1DCV) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (2DCV) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (DHBM) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(dimethylphenyl)-L-cysteine (DPMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (GAMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (HEMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (HPMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (HPM2) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (HPMM) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (MHB1) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (MHB2) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (MHB3) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine (PHEM) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(phenyl)-L-cysteine (PMA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| N-Acetyl-S-(trichlorovinyl)-L-cysteine (TCVM) | urine | | • | | | | | • | • | • | TVB | Alwis |
| Mandelic acid (MADA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| 2-Methylhippuric acid (2MHA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| 3- & 4-Methylhippuric acid (34MH) | urine | | • | | | | | • | • | • | TVB | Alwis |
| t,t-Muconic acid (MUCA) | urine | | • | | | | | • | • | • | TVB | Alwis |
| Phenylglyoxylic acid (PHGA) | urine | | • | | | | | • | • | • | TVB | Alwis |

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|---|-------|---|---|---|---|---|------------------|---|---|-----|---------|---------|
| 2-Thioxothiazolidine-4-carboxylic acid (TTCA) | urine | | | • | | | • | • | • | TVB | Alwis | |
| <i>N</i> -Acetyl-S-(2-hydroxy-2-methyl-3-buten-1-yl)-L-cysteine (IPM2) | urine | | | | | | | • | • | TVB | Alwis | |
| <i>N</i> -Acetyl-S-(2-hydroxy-3-methyl-3-buten-1-yl)-L-cysteine (IPM1) | urine | | | | | | | • | • | TVB | Alwis | |
| <i>N</i> -Acetyl-S-(4-hydroxy-2-methyl-2-buten-1-yl)-L-cysteine (IPM3) | urine | | | | | | | | • | TVB | Alwis | |
| Diisocyanate/TMAO/BMAA Compound Metabolites (Diisocyanate metabolites) | | | | | | | | | | | | |
| 2,4-Diaminotoluene | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| 2,6-Diaminotoluene | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| 4,4'-Diaminodiphenylmethane | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| 1,5-Diaminonaphthalene | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| <i>o</i> -Phenylenediamine | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| <i>p</i> -Phenylenediamine | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| 5-Amino-1,3,3-trimethylcyclohexanemethylamine | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| Hexamethylenediamine | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| β -N-Methylamino-L-alanine | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| Trimethylamine N-oxide | urine | | | | | | • surplu s | | • | TVB | Alwis | |
| Tobacco Biomarkers: Cotinine and Nicotine Analogs | | | | | | | | | | | | |
| Anabasine | urine | | | | | | | | • | • | TVB | Wang |
| Anatabine | urine | | | | | | | | • | • | TVB | Wang |
| Cotinine | serum | • | • | • | • | • | • | • | • | TVB | Sosnoff | |
| Cotinine | urine | | | | | | | | • | • | TVB | Wang |
| Cotinine-n-oxide | urine | | | | | | | | • | • | TVB | Wang |
| Hydroxycotinine | serum | | | | | | | | • | • | TVB | Sosnoff |
| Hydroxycotinine | urine | | | | | | | | • | • | TVB | Wang |
| Norcotinine | urine | | | | | | | | • | • | TVB | Wang |
| Nicotine-1'N-oxide | urine | | | | | | | | • | • | TVB | Wang |
| Nornicotine | urine | | | | | | | | • | • | TVB | Wang |
| Nicotine | urine | | | | | | | | • | • | TVB | Wang |
| 4-Hydroxy-4-(3-pyridyl) butanoic acid | urine | | | | | | | | • | • | TVB | Wang |
| Tobacco Biomarkers: Aldehydes | | | | | | | | | | | | |
| Acetaldehyde | serum | | | | | | | | • | • | TVB | Silva |
| Acrolein | serum | | | | | | | | • | • | TVB | Silva |
| Benzaldehyde | serum | | | | | | | | • | • | TVB | Silva |
| Butyraldehyde | serum | | | | | | | | • | • | TVB | Silva |
| Crotonaldehyde | serum | | | | | | | | • | • | TVB | Silva |
| Decanal | serum | | | | | | | | • | • | TVB | Silva |

| | | | | | | | | | |
|--|-------|---------|---|---|---|---|---|-----|--------|
| Furaldehyde | serum | | | | | • | • | TVB | Silva |
| Heptanal | serum | | | | | • | • | TVB | Silva |
| n-Hexanal | serum | | | | | • | • | TVB | Silva |
| Isobutyraldehyde | serum | | | | | | • | TVB | Silva |
| Isovaleraldehyde | serum | | | | | • | • | TVB | Silva |
| Nonanal | serum | | | | | • | • | TVB | Silva |
| trans-2-nonenal | serum | | | | | • | • | TVB | Silva |
| Octanal | serum | | | | | • | • | TVB | Silva |
| o-Tolualdehyde | serum | | | | | • | • | TVB | Silva |
| Pentanal | serum | | | | | • | • | TVB | Silva |
| Propionaldehyde | serum | | | | | • | • | TVB | Silva |
| Tobacco Biomarkers: Aromatic Amines | | | | | | | | | |
| Aniline | urine | | | | | • | • | TVB | Seyler |
| 1-Aminonaphthalene | urine | | | | | • | • | TVB | Seyler |
| 2-Aminonaphthalene | urine | surplus | | | | • | • | TVB | Seyler |
| 2-Aminobiphenyl | urine | | | | | • | • | TVB | Seyler |
| 3-Aminobiphenyl | urine | | | | | • | • | TVB | Seyler |
| 4-Aminobiphenyl | urine | surplus | | | | • | • | TVB | Seyler |
| Anisidine | urine | | | | | • | • | TVB | Seyler |
| Benzidine | urine | | | | | • | • | TVB | Seyler |
| 2,6-Dimethylaniline | urine | | | | | • | • | TVB | Seyler |
| Quinoline | urine | | | | | • | • | TVB | Seyler |
| o-Toluidine | urine | surplus | | | | • | • | TVB | Seyler |
| m-Toluidine | urine | | | | | • | • | TVB | Seyler |
| p-Toluidine | urine | | | | | • | • | TVB | Seyler |
| Tobacco Biomarkers: Heterocyclic Amines | | | | | | | | | |
| 3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1) | urine | | | | | • | • | TVB | Xia |
| 2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C) | urine | | | | | • | • | TVB | Xia |
| 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (Ph1P) | urine | | | | | • | • | TVB | Xia |
| 2-Amino-9H-pyrido[2,3-b]indole (A- α -C) | urine | | | | | • | • | TVB | Xia |
| 2-Amino-3-methylimidazo[4,5-f]quinoline (IQ) | urine | | | | | • | • | TVB | Xia |
| 2-Amino-6-methyldipyrdo[1,2-a:3',2'-d]imidazole (Glu-P1) | urine | | | | | • | • | TVB | Xia |
| 2-Aminodipyrdo[1,2-a:3',2'-d]imidazole (GLU-P2) | urine | | | | | • | • | TVB | Xia |
| Harman | urine | | | | | • | • | TVB | Xia |
| 1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2) | urine | | | | | • | • | TVB | Xia |
| Norharman | urine | | | | | • | • | TVB | Xia |
| Tobacco Biomarkers: TSNAs | | | | | | | | | |
| 4-(Methylnitrosamino)-1-(3-pyridyl)-1-Butanol (NNAL) | urine | | • | • | • | • | • | TVB | Xia |
| 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) | urine | | | | | • | • | TVB | Xia |
| N'-Nitrosanabasine (NAB) | urine | | | | | • | • | TVB | Xia |

| | | | | | | | | | | |
|---|--------|---|---|---|-------------|---|---|---|-----|-----------------|
| N'-Nitrosanatabine (NAT) | urine | | | | | • | • | | TVB | Xia |
| N'-Nitrosornicotine (NNN) | urine | | | | | • | • | | TVB | Xia |
| Tobacco Biomarkers: N-Nitrosamines | | | | | | | | | | |
| N-Nitrosodiethylamine (NDEA) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| N-nitrosodimethylamine (NDMA) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| N-Nitrosoethylmethylamine (NMEA) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| N-nitrosomorpholine (NMOR) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| N-Nitrosopiperidine (NPIP) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| N-Nitrosopyrrolidine (NPYR) | urine | | | | surplu s | • | • | | TVB | Seyler/ Wang |
| trans Fatty Acids | | | | | | | | | | |
| trans-9-Hexadecenoic acid | plasma | | | | • | | | | CCB | Vesper |
| trans-9-Octadecenoic acid | plasma | | | | • | | | | CCB | Vesper |
| trans,trans-9,12-Octadecadienoic acid | plasma | | | | • | | | | CCB | Vesper |
| trans-11-Octadecanoic acid | plasma | | | | • | | | | CCB | Vesper |
| Caffeine and Metabolites | | | | | | | | | | |
| 5-acetylamino-6-amino-3-methyluracil | urine | | | | • | • | • | | NBB | Ryback |
| 1-methyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 3-methyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 7-methyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 1,3-dimethyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 1,7-dimethyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 3,7-dimethyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 1,3,7-trimethyluric acid | urine | | | | • | • | • | | NBB | Ryback |
| 1-methylxanthine | urine | | | | • | • | • | | NBB | Ryback |
| 3-methylxanthine | urine | | | | • | • | • | | NBB | Ryback |
| 7-methylxanthine | urine | | | | • | • | • | | NBB | Ryback |
| 1,3-dimethylxanthine (theophylline) | urine | | | | • | • | • | | NBB | Ryback |
| 1,7-dimethylxanthine (paraxanthine) | urine | | | | • | • | • | | NBB | Ryback |
| 3,7-dimethylxanthine (theobromine) | urine | | | | • | • | • | | NBB | Ryback |
| | urine | | | | • | • | • | | NBB | Ryback |
| Iron-Status and Inflammation Indicators | | | | | | | | | | |
| Ferritin | serum | • | • | • | • | | | • | NBB | Pfeiffer |
| Transferrin receptor | serum | • | • | • | • | | | • | NBB | Pfeiffer |
| Iron | serum | | | | | | | | NBB | Pfeiffer |
| TIBC | serum | | | | | | | | NBB | Pfeiffer |
| Transferrin saturation | serum | | | | | | | | NBB | Pfeiffer |
| Protoporphyrin | serum | | | | | | | | NBB | Pfeiffer |
| Water Soluble Vitamins and Related Compounds | | | | | | | | | | |
| Folate (serum) | serum | • | • | • | • | | | | NBB | Pfeiffer |
| Folate (RBC) | RBC | • | • | • | • | • | • | • | NBB | Pfeiffer |
| Folate forms by LC-MS/MS (serum) | serum | | | | | | | | NBB | Pfeiffer |
| Total folate | serum | | | | | • | • | • | NBB | Pfeiffer |
| 5-Methyltetrahydrofolate | serum | | | • | | • | • | • | NBB | Pfeiffer |

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|--|------------------|---|---|---|---|---|---|---|---|-----|------------|
| Folic acid | serum | | | | • | | • | • | • | NBB | Pfeiffer |
| 5-Formyltetrahydrofolate | serum | | | | | | • | • | • | NBB | Pfeiffer |
| Tetrahydrofolate | serum | | | | | | • | • | • | NBB | Pfeiffer |
| 5,10-Methenyltetrahydrofolate | serum | | | | | | • | • | • | NBB | Pfeiffer |
| MeFox oxidation product | serum | | | | | | • | • | • | NBB | Pfeiffer |
| Homocysteine | plasma | • | • | | | | | | | NBB | Pfeiffer |
| Methylmalonic acid | plasma/ serum | • | | | | | • | • | | NBB | Pfeiffer |
| Vitamin B12 | serum | • | • | | | | • | • | | NBB | Pfeiffer |
| Vitamin B6 (pyridoxal-5'-phosphate) | serum | | • | • | • | | | | | NBB | Pfeiffer |
| Vitamin B6 (4-pyridoxic acid) | serum | | • | • | • | | | | | NBB | Pfeiffer |
| Vitamin C (ascorbic acid) | serum | • | • | | | | | | | NBB | Pfeiffer |
| Fat-Soluble Vitamins and Micronutrients | | | | | | | | | | | |
| Vitamin A | serum | | • | | | | | | | NBB | Schleicher |
| Vitamin E | serum | | • | | | | | | | NBB | Schleicher |
| Retinyl palmitate | serum | | • | | | | | | | NBB | Schleicher |
| Retinyl stearate | serum | | • | | | | | | | NBB | Schleicher |
| <i>gamma</i> -Tocopherol | serum | | • | | | | | | | NBB | Schleicher |
| <i>alpha</i> -carotene | serum | | • | | | | | | | NBB | Schleicher |
| <i>trans-beta</i> -Carotene | serum | | • | | | | | | | NBB | Schleicher |
| <i>cis-beta</i> -Carotene | serum | | • | | | | | | | NBB | Schleicher |
| <i>beta</i> -Cryptoxanthin | serum | | • | | | | | | | NBB | Schleicher |
| Lutein/zeaxanthin | serum | | • | | | | | | | NBB | Schleicher |
| <i>trans</i> -Lycopene | serum | | • | | | | | | | NBB | Schleicher |
| Total lycopene | serum | | • | | | | | | | NBB | Schleicher |
| 25-OH Vitamin D | serum | • | • | | | | | | | NBB | Schleicher |
| 25-OH Vitamin D2 | serum | | | • | • | • | • | • | | NBB | Schleicher |
| 25-OH Vitamin D3 | serum | | | • | • | • | • | • | | NBB | Schleicher |
| epimer-25-OH Vitamin D3 | serum | | | • | • | • | • | • | | NBB | Schleicher |
| Fatty acids (30) | | | | | | | | | | | |
| Capric acid (C10:0) | plasma /serum | | | | | | • | • | | NBB | Schleicher |
| Lauric acid (C12:0) | plasma /serum | | | | | | • | • | | NBB | Schleicher |
| Myristic acid (14:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Pentadecanoic acid (C15:0) | plasma /serum | | | | | | • | • | | NBB | Schleicher |
| Palmitic acid (16:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Margaric acid (C17:0) | plasma /serum | | | | | | • | • | | NBB | Schleicher |
| Stearic acid (18:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Arachidic acid (20:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Docosanoic acid (22:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Tricosanoic acid (C23:0) | plasma /serum | | | | | | • | • | | NBB | Schleicher |
| Lignoceric acid (24:0) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Myristoleic acid (14:1n-5) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |
| Palmitoleic acid (16:1n-7) | plasma /serum | • | | | | | • | • | | NBB | Schleicher |

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|-------------------------------------|--------------|---|--|--|--|---|---|---|-----|------------|
| cis-Vaccenic acid (18:1n-7) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Oleic acid (18:1n-9) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Eicosenoic acid (20:1n-9) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Nervonic acid (24:1n-9) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Linoleic acid (18:2n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| alpha-Linolenic acid (18:3n-3) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| gamma-Linolenic acid (18:3n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Stearidonic acid (C18:4n-3) | plasma/serum | | | | | • | • | | NBB | Schleicher |
| Eicosadienoic acid (20:2n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| homo-gamma-Linolenic acid (20:3n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Eicosatrienoic acid (C20:3n-9) | plasma/serum | | | | | • | • | | NBB | Schleicher |
| Arachidonic acid (20:4n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Eicosapentaenoic acid (20:5n-3) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Docosatetraenoic acid (22:4n-6) | plasma/serum | | | | | • | • | | NBB | Schleicher |
| Docosapentaenoic acid (22:5n-3) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Docosapentaenoic acid (22:5n-6) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Docosahexaenoic acid (22:6n-3) | plasma/serum | • | | | | • | • | | NBB | Schleicher |
| Hormones and Binding Protein | | | | | | | | | | |
| Estradiol | serum | | | | | | • | • | CCB | Vesper |
| Testosterone | serum | | | | | • | • | • | CCB | Vesper |
| Steroid Hormone Binding Globulin | serum | | | | | | • | • | CCB | Vesper |