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| **Analyte(s)** | **Indication** | **Matrices** | **Prep** | **S-Ph** | **E-Mode** | **Interf** | **IS** | **ME (%)** | **RT (min)** | **LLOQ** | **Ref** |
| Belinostat Panobinostat Rocilinostat Vorinostat | HDAC inhibitor | r-plasma | PPT | C18(50×4.6 mm, 5μm) | ISO | ESI (+) | AN | No significant ME | 2.5 | 2.9 ng/mL  2.9 ng/mL  1.0 ng/mL  1.0 ng/mL | 53 |
| CT-707  CT-707M1  CT-707M2 | Tyrosine kinase  selective inhibitor | h-plasma | SPE | C18 ((2.1×50 mm, 1.7μm)  UPLC | GRA | ESI (+) | IL | 86.9-  102 | 3.0 | 2 ng/mL  1 ng/mL  1 mg/mL | 54 |
| Gefitinib  O-DMG | EGFR inhibitor | h-plasma | PPT | C18(150 × 2.1 mm, 5µm) | ISO | ESI (+) | AN | 93.0-103.3;  41.6-50.2 | 3.0 | 5 nmol/L | 55 |
| Sunitinib  Gefitinib  Norimatinib (met)  Imatinib  Dasatinib  Erlotinib  Axitinib  Nilotinib  Lapatinib  Sorafenib | Nine tyrosine kinase inhibitors and one metabolite of Imatinib | h-pls | SPE | C18 (50×2.1 mm, 1.7μm)  UPLC | GRA | ESI (+) | IL | 96.6  104.5  85.5  85.0  84.5  81.6  113.1  101.8  91.2  107.7 | 4.0 | 10 ng/mL  0.1 ng/mL  10 mg/mL  10 ng/mL  0.1 ng/mL  10 mg/mL  0.1 ng/mL  10 ng/mL  10 mg/mL  0.1 mg/mL | 56 |
| MTX  7-OH-MTX | Anticancer drug | m-plasma  m-brain | PPT | C18 (50×2.0mm, 5µm) | ISO | ESI(+) | IL | 88.2-108.8 | 4.0 | 3.7 ng/mL  7.4 ng/mL | 57 |
| 17 tyrosine kinase inhibitors | EGFR tyrosine kinase inhibitors | h-plasma | SPE | C18(5 × 2.1 mm, 1.6µm)  UPLC | GRA | ESI(+) | IL | 83.4- 116.40 | 5.0 | 0.1 ng/mL | 58 |
| Doxorubicin  L-DOX | Anticancer antibiotic | h-plasma | SPE | C18 (50×2.1 mm, 5.0μm) | GRA | ESI(+) | AN  IL | 95.7–98.9 | 5.0 | 3.13 ng/mL  0.15 μg/mL | 59 |
| Vemurafenib, Dabrafenib  Cobimetinib, Trametinib Binimetinib | 2 BRAF  inhibitors  3 MEK inhibitors | h-plasma | SPE | C18(100×2.1mm, 5.0μm)  UPLC | GRA | ESI(+) | IL | 80.6 - 115.4 | 5.0 | 0.4 ng/mL  1.0 ng/mL  0.5 ng/mL  0.5 ng/mL  0.75 ng/mL | 60 |
| Thalidomide  Lenalidomide Cyclophosphamide Bortezomib Dexamethasone  Adriamycin | Anticancer drug | h-serum | SPE | C18 (50×2.1mm, 2.5μm) | GRA | ESI(+) | AN | 89-100  60-64  113-124  103-126  90-92  143-163 | 5.0 | 4 ng/mL  2 ng/mL  2 ng/mL  2 ng/mL  2 ng/mL  2 ng/mL | 61 |
| MG  PGG | Natural compounds | r-blood | LLE | C18 (50×2.1 mm, 5µm) UPLC | GRA | ESI(+) | AN | 76-87  80-104 | 5.0 | 19.5 nmol/L  39 nmol/L | 62 |
| Allitinib  M6  M10 | Irreversible inhibitor of the EGFR 1/2 | h-plasma | PPT | C18(50×4.6mm, 1.8µm) | GRA | ESI(+) | AN | 98.7-105.0 | 5.0 | 0.3 ng/mL  0.03 ng/mL  0.075 ng/mL | 63 |
| Gefitinib  Erlotinib  Afatinib | EGFR tyrosine kinase inhibitors | h-plasma | LLE | C18(50×2.1mm, 3.5 µm)  UPLC | ISO | ESI(+) | AN | UNK | 5.0 | 0.01 nmol/L  0.01 nmol/L  0.05 nmol/L | 64 |
| CP  4OHCP | Anticancer drug | h-plasma | PPT | C18 (150× 2.1 mm, 5μm) | GRA | ESI (+) | IL  AN | UNK | 6.0 | 0.2 µg/mL  0.05 µg/mL | 65 |
| Clofarabine Cytarabine | Anticancer drug | h-plasma | PPT | C18(150×2.0 mm, 4 μm) | GRA | ESI(+) | AN | None | 6.0 | 8 ng/mL  20 ng/mL | 66 |
| Gefitinib  M523595  M537194  M387783  M608236 | EGFR tyrosine kinase inhibitor & its metabolites | m-plasma | PPT | C18 (50×2.1 mm, 1.8 m) | GRA | ESI(+) | AN | 86-112 | 6.0 | 1 ng/mL  1 ng/mL  1 ng/mL  1 ng/mL  1 ng/mL  0.5 ng/mL | 67 |
| Exemestane  17β-2H-EXE  17β-2H-EXE-Glu | Steroidal aromatase inhibitor | h-plasma | PPT | C18 (100×2.1mm, 5µm) | GRA | ESI(+) | AN | 62.2  54.2  33.8 | 6.0 | 0.4 ng/mL  0.2 ng/mL  0.2 ng/mL | 68 |
| CPT-11  SN-38  SN-38G  APC  NPC | Topoisomerase I inhibitor | h-plasma | PPT | C18 (50×2.0mm, 2.6µm) | GRA | ESI(+) | AN | 91.0 | 6.0 | 0.5 ng/mL  0.2 ng/mL  0.5 ng/mL  0.5 ng/mL  0.2 ng/mL | 69 |
| Sinotecan  7-HEC | Anticancer agent | h-blood | PPT | C8(150×4.6mm, 5µm) | GRA | ESI(+) | AN | 104-114 | 6.0 | 1 ng/mL  0.5 ng/mL | 70 |
| Letrozole  carbinol  carbinol glucuronide | Aromatase inhibitor and its metabolites | h-pls | SPE | C18(50×4.6mm, 1.8μm)  UPLC | GRA | ESI(+) | IL | 30-31  90-100 | 6.0 | 20 nmol/L  0.2 nmol/L  2 nmol/L | 71 |
| PR104  PR-104A  PR-104G  PR-104H  PR-104M | Hypoxia-activated prodrug | h-plasma | PPT | C18 (50×2.1mm,1.8 µm) UPLC | GRA | ESI(+) | IL | 87.4-112.6 | 6.0 | 0.1µmol/L  0.05µmol/L  0.05µmol/L  0.025µmol/L  0.01µmol/L | 72 |
| CA4P  CA4  CA4-Glu | Antitumor vascular disrupting agent | d-plasma | PPT | C18 (150 ×3.0 mm, 5μm) | GRA | ESI(+) ESI(+)  ESI(-) | AN | NEG | 6.0 | 5 ng/mL | 73 |
| Paclitaxel  Docetaxel  Vinblastine  Vinorelbine | Regulators of microtubule formation | h-plasma | LLE | C18 (100×2.1mm, 3.5µm) | ISO | ESI(+) | AN | 86.7-102.5 | 6.0 | 25 ng/mL  10 ng/mL  10 ng/mL  10 ng/mL | 74 |
| 17AAG  17AG | HSP90 inhibitor | h-plasma | PPT | C18 (50 ×2.1 mm, 5μm) | GRA | ESI(+) | AN | UNK | 7.0 | 0.5 ng/mL  0.5 ng/mL | 75 |
| Abbreviation: Prep: sample preparation; S-Ph(M-Ph): Solid phase (Mobile phase); E-mode: Elution mode; Interf: Interface; IS: Internal standard; RT:Run time; LLOQ:Lower limit of quantitation; Ref: Reference number; h: human; m:mouse; r:rat; d:dog; LLE: liquid-liquid extraction; SPE: solid phase extraction; PPT: protein precipitation; ISO: isocratic elution; GRA: gradient elution; AN: analogue internal standard; IL: isotope labeled internal standard; CP: Cyclophosphamide; 4OHCP: 4-hydroxycyclophosphamide; O-DMG:O-desmethyl gefitinib; MTX: Methotrexate; L-DOX: Liposomal doxorubicin; LBH589: Panobinostat; MG: methyl gallate; PGG: pentagalloyl glucopyranose; 17β-2H-EXE: 17β-hydroxyexemestane; 17β-2H-EXE-Glu: 17β-hydroxyexemestane-17-O-β-D-glucuronide A; 7-HEC: 7-hydroxyethyl-camptothecin; PR104: (A: alcohol; H: hydroxylamine; M: amine; G: O-glucuronide); CA4P: combretastatin A4 phosphate; CA4: combretastatin A4; CA4G: combretastatin A4 glucuronide; 17AAG: 17-(allylamino)-17-demethoxygeldanamycin; 17AG: 17-amino-17-demethoxygeldanamycin; NEG: negligible matrix effect; SIG: significant matrix effect; UNK: unknown; | | | | | | | | | | | |