**Medium to use**

**Unconstrained elements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Elements** | **Recon ID** | **lb** | **ub** |
| **H2O** |  |  |  |
| **O2** |  |  |  |
| **H** |  |  |  |
| **O2S** |  |  |  |
| **CO2** |  |  |  |
| **Pi** |  |  |  |
| **H2O2** |  |  |  |
| **HCO3** |  |  |  |
| **H2CO3** |  |  |  |
| **CO** |  |  |  |

**Plasmax medium**

- Article: Vande Voorde et al. *Improving the metabolic fidelity of cancer models with a physiological cell culture medium*. Science Advances. 2019;5: eaau7314 (<10.1126/sciadv.aau7314>)

- Detailed information gathered from supplementary table S1 (<https://advances.sciencemag.org/content/advances/suppl/2018/12/21/5.1.eaau7314.DC1/aau7314_SM.pdf>)

- Medium: <https://ximbio.com/reagent/156371/plasmaxsuptmsup-cell-culture-medium-coming-soon#datasheet>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Elements** | **Recon ID** | **Concentration in Medium (μM)** | **lb** | **ub** |
| **Proteinogenic Amino Acids** | L-Alanine |  | 510 |  |  |
| L-Arginine |  | 64 |  |  |
| L-Asparagine |  | 41 |  |  |
| L-Aspartic acid |  | 6 |  |  |
| L-Cysteine |  | 33 |  |  |
| L-Glutamate |  | 98 |  |  |
| L-Glutamine |  | 650 |  |  |
| Glycine |  | 330 |  |  |
| L-Histidine |  | 120 |  |  |
| L-Isoleucine |  | 140 |  |  |
| L-Leucine |  | 170 |  |  |
| L-Lysine |  | 220 |  |  |
| L-Methionine |  | 30 |  |  |
| L-Phenylalanine |  | 68 |  |  |
| L-Proline |  | 360 |  |  |
| L-Serine |  | 140 |  |  |
| L-Threonine |  | 240 |  |  |
| L-Tryptophan |  | 78 |  |  |
| L-Tyrosine |  | 74 |  |  |
| L-Valine |  | 230 |  |  |
| **Non-proteinogenic Amino Acids** | α-Aminobutyrate |  | 41 |  |  |
| L-Citrulline |  | 55 |  |  |
| L-Cystine |  | 65 |  |  |
| L-Homocysteine |  | 9 |  |  |
| 4-Hydroxy-L-proline |  | 13 |  |  |
| L-Ornithine |  | 80 |  |  |
| L-Pyroglutamate |  | 20 |  |  |
| **Amino Acids Derivatives** | L-Acetyl glycine |  | 70 |  |  |
| L-Carnosine |  | 6 |  |  |
| Glutathione (reduced) |  | 37 |  |  |
| Taurine |  | 130 |  |  |
| N-Trimethylglycine (betaine) |  | 72 |  |  |
| **Other Components** | Acetate |  | 42 |  |  |
| Acetone |  | 55 |  |  |
| Acetyl carnitine |  | 5 |  |  |
| Citrate |  | 114 |  |  |
| Carnitine |  | 46 |  |  |
| Creatine |  | 37 |  |  |
| Creatinine |  | 74 |  |  |
| Formate |  | 33 |  |  |
| D-Glucose |  | 5560 |  |  |
| Glycerol |  | 82 |  |  |
| 2-Hydroxybutyrate |  | 31 |  |  |
| 3-Hydroxybutyrate |  | 77 |  |  |
| 3-Hydroxyisobutyrate |  | 20 |  |  |
| Hypoxanthine |  | 5 |  |  |
| Lactate |  | 500 |  |  |
| Methyl acetoacetate |  | 41 |  |  |
| Phenol Red |  | 25 |  |  |
| Pyruvate |  | 100 |  |  |
| Succinate |  | 23 |  |  |
| Uracil |  | 2 |  |  |
| Urate |  | 270 |  |  |
| Urea |  | 3000 |  |  |
| Uridine |  | 3 |  |  |
| **Inorganic Salts** | Ammonium Chloride |  | 50 |  |  |
| Calcium Chloride |  | 1800 |  |  |
| Magnesium Sulfate |  | 813 |  |  |
| Potassium Chloride |  | 5330 |  |  |
| Sodium Bicarbonate |  | 26191 |  |  |
| Sodium Chloride |  | 118706 |  |  |
| Sodium Phosphate monobasic |  | 1010 |  |  |
| **Trace Elements** | Ammonium Metavanadate |  | 0.0026 |  |  |
| Cupric Sulfate |  | 0.0052 |  |  |
| Ferric Nitrate |  | 0.1238 |  |  |
| Ferric Sulfate |  | 1.048 |  |  |
| Manganous Chloride |  | 0.0002 |  |  |
| Sodium Selenite |  | 0.0289 |  |  |
| Zinc Sulfate |  | 1.5 |  |  |
| Ascorbate |  | 62 |  |  |
| D-Biotin |  | 4.1 |  |  |
| Choline |  | 7.1 |  |  |
| Folate |  | 2.3 |  |  |
| Myo-Inositol |  | 11.1 |  |  |
| Niacinamide |  | 8.2 |  |  |
| D-Pantothenic acid hemicalcium |  | 4.2 |  |  |
| Pyridoxine |  | 4.9 |  |  |
| Riboflavin |  | 0.3 |  |  |
| Thiamine |  | 3 |  |  |
| Vitamin B12 |  | 0.005 |  |  |

**RPMI-1640 medium**