

Table S2B: List of exchange reactions included in *i*IT341 GSM/GPR

Abbreviation	Official name	Reaction	Direction
BiomassHP	growth demand		Irreversible
DM-hmfurn(c)	4-hydroxy-5-methyl-3(2H)-furanone demand	[c] : hmfurn -->	Irreversible
EX_aa(e)	Acetamide exchange	[e] : aa <==>	Reversible
EX_ac(e)	Acetate exchange	[e] : ac <==>	Reversible
EX_acac(e)	Acetoacetate exchange	[e] : acac <==>	Reversible
EX_acald(e)	Acetaldehyde exchange	[e] : acald <==>	Reversible
EX_ad(e)	Acrylamide exchange	[e] : ad <==>	Reversible
EX_ade(e)	Adenine exchange	[e] : ade <==>	Reversible
EX_adn(e)	Adenosine exchange	[e] : adn <==>	Reversible
EX_akg(e)	2-Oxoglutarate exchange	[e] : akg <==>	Reversible
EX_ala-D(e)	D-Alanine exchange	[e] : ala-D <==>	Reversible
EX_ala-L(e)	L-Alanine exchange	[e] : ala-L <==>	Reversible
EX_arg-L(e)	L-Arginine exchange	[e] : arg-L <==>	Reversible
EX_asn-L(e)	L-Asparagine exchange	[e] : asn-L <==>	Reversible
EX_asp-L(e)	L-Aspartate exchange	[e] : asp-L <==>	Reversible
EX_cit(e)	Citrate exchange	[e] : cit <==>	Reversible
EX_co2(e)	CO2 exchange	[e] : co2 <==>	Reversible
EX_cys-L(e)	L-Cysteine exchange	[e] : cys-L <==>	Reversible
EX_cytd(e)	Cytidine exchange	[e] : cytd <==>	Reversible
EX_dad-2(e)	Deoxyadenosine exchange	[e] : dad-2 <==>	Reversible
EX_dcyt(e)	Deoxycytidine exchange	[e] : dcyt <==>	Reversible
EX_duri(e)	Deoxyuridine exchange	[e] : duri <==>	Reversible
EX_etoh(e)	Ethanol exchange	[e] : etoh <==>	Reversible
EX_fe2(e)	Fe2+ exchange	[e] : fe2 <==>	Reversible
EX_fe3(e)	Fe3+ exchange	[e] : fe3 <==>	Reversible
EX_for(e)	Formate exchange	[e] : for <==>	Reversible
EX_fum(e)	Fumarate exchange	[e] : fum <==>	Reversible
EX_gal(e)	D-Galactose exchange	[e] : gal <==>	Reversible
EX_glc(e)	D-Glucose exchange	[e] : glc-D <==>	Reversible
EX_gln-L(e)	L-Glutamine exchange	[e] : gln-L <==>	Reversible
EX_glu-L(e)	L-Glutamate exchange	[e] : glu-L <==>	Reversible
EX_gly(e)	Glycine exchange	[e] : gly <==>	Reversible
EX_gsn(e)	Guanosine exchange	[e] : gsn <==>	Reversible
EX_gua(e)	Guanine exchange	[e] : gua <==>	Reversible
EX_h(e)	H+ exchange	[e] : h <==>	Reversible
EX_h2(e)	H2 exchange	[e] : h2 <==>	Reversible
EX_h2co3(e)	carbonic acid exchange	[e] : h2co3 <==>	Reversible
EX_h2o(e)	H2O exchange	[e] : h2o <==>	Reversible
EX_his-L(e)	L-Histidine exchange	[e] : his-L <==>	Reversible
EX_hxan(e)	Hypoxanthine exchange	[e] : hxan <==>	Reversible
EX_ile-L(e)	L-Isoleucine exchange	[e] : ile-L <==>	Reversible
EX_lac-L(e)	L-Lactate exchange	[e] : lac-L <==>	Reversible
EX_leu-L(e)	L-Leucine exchange	[e] : leu-L <==>	Reversible
EX_lys-L(e)	L-Lysine exchange	[e] : lys-L <==>	Reversible
EX_mal-L(e)	L-Malate exchange	[e] : mal-L <==>	Reversible
EX_met-L(e)	L-Methionine exchange	[e] : met-L <==>	Reversible
EX_na1(e)	Sodium exchange	[e] : na1 <==>	Reversible
EX_nh4(e)	Ammonia exchange	[e] : nh4 <==>	Reversible
EX_ni2(e)	Ni2+ exchange	[e] : ni2 <==>	Reversible
EX_nmn(e)	NMN exchange	[e] : nmn <==>	Reversible
EX_no(e)	Nitric oxide exchange	[e] : no <==>	Reversible
EX_no2(e)	Nitrite exchange	[e] : no2 <==>	Reversible

EX_no3(e)	Nitrate exchange	[e] : no3 <==>	Reversible
EX_o2(e)	O2 exchange	[e] : o2 <==>	Reversible
EX_orn(e)	Ornithine exchange	[e] : orn <==>	Reversible
EX_orot(e)	Orotate exchange	[e] : orot <==>	Reversible
EX_phe-L(e)	L-Phenylalanine exchange	[e] : phe-L <==>	Reversible
EX_pheme(e)	(proto) heme exchange	[e] : pheme <==>	Irreversible
EX_pi(e)	Phosphate exchange	[e] : pi <==>	Reversible
EX_pime(e)	Pimelate exchange	[e] : pime <==>	Reversible
EX_pro-L(e)	L-Proline exchange	[e] : pro-L <==>	Reversible
EX_pyr(e)	Pyruvate exchange	[e] : pyr <==>	Reversible
EX_ser-D(e)	D-Serine exchange	[e] : ser-D <==>	Reversible
EX_ser-L(e)	L-Serine exchange	[e] : ser-L <==>	Reversible
EX_so4(e)	Sulfate exchange	[e] : so4 <==>	Reversible
EX_succ(e)	Succinate exchange	[e] : succ <==>	Reversible
EX_thm(e)	Thiamin exchange	[e] : thm <==>	Reversible
EX_thr-L(e)	L-Threonine exchange	[e] : thr-L <==>	Reversible
EX_thymd(e)	Thymidine exchange	[e] : thymd <==>	Reversible
EX_trp-L(e)	L-Tryptophan exchange	[e] : trp-L <==>	Reversible
EX_tyr-L(e)	L-Tyrosine exchange	[e] : tyr-L <==>	Reversible
EX_ura(e)	Uracil exchange	[e] : ura <==>	Reversible
EX_urea(e)	Urea exchange	[e] : urea <==>	Reversible
EX_uri(e)	Uridine exchange	[e] : uri <==>	Reversible
EX_val-L(e)	L-Valine exchange	[e] : val-L <==>	Reversible
EX_xan(e)	Xanthine exchange	[e] : xan <==>	Reversible