Table I. Lactic acid metabolic pathway reactions with the standard reaction Gibbs energies and enthalpies.

Reaction	$\Delta_r G^{0'a}$	$\Delta_r G^{0'b}$	pH	pMg	I	T	$\Delta_r G^{0'c}$	$\Delta_r H^{0'}$
(1) Glc + ATP ⇔ G6P + ADP	−16.74	−18.11	6.99	2.52	0.25	310.15	−18.20	−67.7
(2) G6P ⇔ F6P	1.67	3.04	8.7	3	—	298.15	4.31	11.6
(3) F6P + ATP ⇔ FBP + ADP	−14.23	−19.50	8	2.16	—	303.15	−22.09	−50.3
(4) FBP ⇔ DHAP + GAP	23.85	24.02	7.1	2.3	—	311.15	21.14	−60.2
(5) DHAP ⇔ GAP	7.53	7.66	7	—	0.25	311.15	10.18	0
(6) GAP + NAD + Pi ⇔ BPG + NADH	6.28	2.18	6.91	3.51	0.25	311.15	1.27	−4.31
(7) BPG + ADP ⇔ P3G + ATP	−18.83	−17.87	7	1.22	0.25	311.15	−11.56	0
(8) 3PG ⇔ 2PG	4.60	4.57	7	—	—	311.15	5.80	3.5
(9) 2PG ⇔ PEP	1.67	−3.61	7	3	—	298.15	−5.72	0
(10) PEP + ADP ⇔ ATP + Pyr	−31.38	−22.11	7.4	2.7	—	303.15	−16.00	35.1
(11.) Pyr + NADH ⇔ Lac + NAD	−25.10	−24.00	7	—	0.045	311.15	−23.37	54.6

Gibbs energies and enthalpies are given in (kJ/mol), ionic strength in (M), and the temperature is in (*K*).
[a]Values used in Maskow and von Stockar (2005) (standard state defined as: pH 7 and 298.1 K).
[b]Values calculated from the NIST database (Goldberg et al., 2004). The experimental pH, pMg, and *I* are given in the following columns.
[c]Values calculated from the NIST database corrected to the standard state (pH 7, pMg 3, $I = 0.3$ M, $T = 298.5$ K).