RCPA TEa Table

	Test or Analyte	Lower Goal	Upper Goal
1	Alcohol	± 2.2 mmol/L ≤ 21.7 mmol/L	± 10% > 21.7 mmol/L
2	Ammonia	± 3 umol/L ≤ 30 umol/L	± 10% > 30 umol/L
3	Amikacin	± 2.0 mg/L ≤ 20.0 mg/L	± 10% > 20.0 mg/L
4	Gentamicin	± 0.5 mg/L ≤ 5.0 mg/L	± 10% > 5.0 mg/L
5	Tobramycin	± 0.5 mg/L ≤ 5.0 mg/L	± 10% > 5.0 mg/L
6	Vancomycin	± 2.0 mg/L ≤ 20.0 mg/L	± 10% > 20.0 mg/L
7	Adrenaline	± 50 nmol/day ≤ 150 nmol/day	± 33% > 150 nmol/day
8	Dopamine	± 0.25 umol/day ≤ 1.0 umol/day	± 25% > 1.0 umol/day
9	5HIAA	± 20 umol/day ≤ 100 umol/day	± 20% > 100 umol/day
10	HMMA	± 20 umol/day ≤ 100 umol/day	± 20% > 100 umol/day
11	HVA	± 8 umol/day ≤ 32 umol/day	± 25% > 32 umol/day
12	Metanephrine	± 0.5 umol/day ≤ 1.5 umol/day	± 33% > 1.5 umol/day
13	Noradrenaline	± 50 nmol/day ≤ 500 nmol/day	± 10% > 500 nmol/day
14	Normetanephrine	± 1.0 umol/day ≤ 3.0 umol/day	± 33% > 3.0 umol/day
15	Serotonin	± 0.3 umol/day ≤ 1.0 umol/day	± 30% > 1.0 umol/day
16	Chloride	± 3.0 mmol/L	
17	Glucose	± 1.0 mmol/day ≤ 10.0 mmol/day	± 10% > 10.0 mmol/day
18	Ionised Calcium	± 0.05 mmol/L	
19	Lactate	± 1.0 mmol/day ≤ 10.0 mmol/day	± 10% > 10.0 mmol/day
20	pH	± 0.04	
21	pCO_2	± 2.0 mm Hg ≤ 25.0 mm Hg	± 8% > 25.0 mm Hg
22	pO_2	± 5 mm Hg ≤ 100 mm Hg	± 5% > 100 mm Hg

23	Potassium	± 0.2 mmol/L	
24	Sodium	± 3.0 mmol/L	
25	Hemoglobin concentration	± 3 g/L ≤ 100 g/L	± 3% > 100 g/L
26	Fractional Oxyhemoglobin	± 3 ≤ 75%	± 4% > 75%
27	Fractional Carboxyhemoglobin	± 2.0%	
28	Fractional Methemoglobin	± 1.0 ≤ 10%	± 10% > 100%
29	Albumin	± 0.10 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
30	Glucose	± 1.0 mmol/L ≤ 10 mmol/L	± 10% > 10.0 mmol/L
31	Immunoglobin G	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
32	Lactate	± 0.1 mmol/L ≤ 1.0 mmol/L	± 10% > 1.0 mmol/L
33	Total Protein	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
34	AFP	± 5 kIU/L ≤ 25 kIU/L	± 20% > 25 kIU/L
35	Androstenedione	± 2.0 nmol/L	
36	CA125	± 10 kU/L ≤ 50 kU/L	± 20% > 50 kU/L
37	CEA	± 2.0 ug/L ≤ 10.0 ug/L	± 20% > 10 ug/L
38	Cortisol	± 30 nmol/L ≤ 200 nmol/L	± 15% > 200 nmol/L
39	11-Deoxycortisol	± 30 nmol/L ≤ 200 nmol/L	± 15% > 200 nmol/L
40	DHEA Sulphate	± 1.0 umol/L ≤ 10 umol/L	± 10% > 10 umol/L
41	Ferritin	± 6.0 ug/L ≤ 40.0 ug/L	± 15% > 40.0 ug/L
42	Folate	± 1.0 umol/day ≤ 1.0 umol/day	± 30% > 1.0 umol/day
43	FSH	± 4.0 IU/L ≤ 20.0 IU/L	± 20% > 20.0 IU/L
44	Gastrin	± 25 pmol/L ≤ 250 pmol/L	± 10% > 250 pmol/L
45	Growth Hormone	± 2 mU/L ≤ 10 mU/L	± 20% > 10 mU/L
46	HCG	± 3 IU/L ≤ 20.0 IU/L	± 15% > 20.0 IU/L
47	17-Hydroxyprogesterone	± 3 nmol/L ≤ 15 nmol/L	± 20% > 15 nmol/L

48	IgE	± 4.0 IU/L ≤ 20.0 IU/L	± 20% > 20.0 IU/L
49	Insulin	± 5 mU/L ≤ 20 mU/L	± 25% > 20 mU/L
50	LH	± 2.0 IU/L ≤ 10.0 IU/L	± 20% > 10.0 IU/L
51	Oestradiol	± 100 pmol/L ≤ 500 pmol/L	± 20% > 500 pmol/L
52	Oestriol(total)	± 20 nmol/L ≤ 200 nmol/L	± 10% > 200 nmol/L
53	Oestriol(unconjugated)	± 5 nmol/L ≤ 25 nmol/L	± 20% > 25 nmol/L
54	Progesterone	± 2 nmol/L ≤ 10 nmol/L	± 25% > 10 nmol/L
55	Prolactin	± 20 mIU/L ≤ 100 mIU/L	± 20% > 100 mIU/L
56	SHBG	± 5 nmol/L ≤ 50 nmol/L	± 10% > 50 nmol/L
57	Testosterone	± 0.5 nmol/L ≤ 2.5 nmol/L	± 20% > 2.5 nmol/L
58	TSH	± 0.6 mU/L ≤ 4.0 mU/L	± 15% > 4.0 mU/L
59	Free T3	± 3 pmol/L	
60	Free T4	± 1.5 pmol/L ≤ 10 pmol/L	± 15% > 10 pmol/L
61	Total T3	± 0.3 nmol/L ≤ 1.5 nmol/L	± 20% > 1.5 nmol/L
62	Total T4	± 8 nmol/L ≤ 50 nmol/L	± 15% > 50 nmol/L
63	Vitamin B12	± 20 pmol/L ≤ 100 pmol/L	± 20% > 100 pmol/L
64	Vitamin D3	± 5 nmol/L ≤ 20 nmol/L	± 15 > 20 nmol/L
65	Total PSA	± 1.5 ug/L ≤ 10.0 ug/L	± 15% > 10.0 ug/L
66	Free PSA	± 1.5 ug/L ≤ 10.0 ug/L	± 15% > 10.0 ug/L
67	Aldosterone	± 75.0 pmol/L ≤ 500 pmol/L	± 15% > 500 pmol/L
68	PTH	± 2.5 pmol/L ≤ 10.0 pmol/L	± 25% > 10 pmol/L
69	Plasma Renin Activity	± 1.0 ng/mL/hr; ≤ 4.0 ng/mL/hr	± 25% > 4.0 ng/mL/hr
70	Active Renin	± 1.0 uU/mL ≤ 4.0 uU/mL	± 25% > 4.0 uU/mL
71	Acid Phos(Total)	± 1.5 U/L & ug/L ≤ 10 U/L & ug/L	± 15% > 25 U/L & ug/L
72	Acid Phos(Pros)	± 1.5 U/L & ug/L ≤ 10 U/L & ug/L	± 15% > 25 U/L & ug/L

73	Albumin	± 2.0 g/L ≤ 33.0 g/L	± 6% > 20 g/L
74	Alkaline Phosphatase	± 15 U/L ≤ 125 U/L	± 12% > 100 U/L
75	ALT	± 5 U/L ≤ 40 U/L	± 12% > 40 U/L
76	Amylase	± 10 U/L ≤ 100 U/L	± 10% > 100 U/L
77	AST	± 5 U/L ≤ 40 U/L	± 12% > 60 U/L
78	Bicarbonate	± 2.0 mmol/L ≤ 20 mmol/L	± 10% > 20.0 mmol/L
79	Bilirubin - Total	± 3 umol/L ≤ 25 umol/L	± 12% > 25 umol/L
80	Bilirubin Conjugated	± 3 umol/L ≤ 15 umol/L	± 20% > 15 umol/L
81	Calcium	± 0.10 mmol/L ≤ 2.5 mmol/L	± 4% > 2.5 mmol/L
82	Chloride	± 3.0 mmol/L ≤ 100 mmol/L	± 3% > 100 mmol/L
83	Cholesterol	± 0.3 mmol/L ≤ 5 mmol/L	± 6% > 5 mmol/L
84	Creatine Kinase	± 15 U/L ≤ 125 U/L	± 12% > 125 U/L
85	CK-MB	± 3 U/L & ug/L ≤ 15 U/L & ug/L	± 20% > 15 U/L & ug/L
86	Cortisol	± 30 nmol/L ≤ 150 nmol/L	± 15% > 150 nmol/L
87	Creatinine	± 8 umol/L ≤ 100 umol/L	± 8% > 100 umol/L
88	Ferritin	± 4.0 ug/L ≤ 27.0 ug/L	± 15% > 27 ug/L
89	Fructosamine	± 15 umol/L ≤ 250 umol/L	± 6% > 250 umol/L
90	Glucose	± 0.4 mmol/L ≤ 5.0 mmol/L	± 8% > 5.0 mmol/L
91	GGT	± 5 U/L ≤ 40 U/L	± 12% > 40 U/L
92	hCG-quantitative	± 3.0 IU/L ≤ 20 IU/L	± 15% > 20 IU/L
93	hCG-qualtitative	neg ≤ 20 IU/L	pos > 30 IU/L
94	HDL cholesterol	± 0.1 mmol/L ≤ 0.8 mmol/L	± 12% > 0.8 mmol/L
95	Iron	± 3 umol/L ≤ 25 umol/L	± 12% > 25 umolL
96	Lactate Dehydrogenase	± 20 U/L ≤ 250 U/L	± 8% > 250 U/L
97	Lactate	± 0.5 mmol/L ≤ 4 mmol/L	± 12% > 4 mmol/L

98	Lipase	± 12 U/L ≤ 60 U/L	± 20% > 60 U/L
99	Lithium	± 0.2 mmol/L	
100	Magnesium	± 0.1 mmol/L ≤ 1.25 mmol/L	± 8% > 1.25 mmol/L
101	Osmolality	± 8 mmol/kg ≤ 266 mmol/kg	± 3% > 266 mmol/kg
102	Phosphate	± 0.06 mmol/L ≤ 0.75 mmol/L	± 8% > 0.75 mmol/L
103	Potassium	± 0.2 mmol/L ≤ 4.0 mmol/L	± 5% > 4.0 mmol/L
104	Protein (Total)	± 3.0 g/L ≤ 60 g/L	± 5% > 60 g/L
105	Sodium	± 3 mmol/L ≤ 150 mmol/L	± 2% > 150 mmol/L
106	Total T3	± 0.2 nmol/L ≤ 1.3 nmol/L	± 15% > 1.3` nmol/L
107	Free T3	± 0.7 pmol/L ≤ 3.5 pmol/L	± 20% > 3.5 pmol/L
108	Free T4	± 1.5 pmol/L ≤ 12 pmol/L	± 12% > 12 pmol/L
109	TSH	± 0.1 mU/L ≤ 0.5 mU/L	± 20% > 0.5 mU/L
110	Thyroxine	± 12 nmol/L ≤ 120 nmol/L	± 10% > 120 nmol/L
111	TIBC	± 4 umol/L ≤ 50 umol/L	± 8% > 50 umol/L
112	Transferrin	± 0.2 g/L ≤ 2.5 g/L	± 8% > 2.5 g/L
113	Triglyceride	± 0.2 mmol/L ≤ 1.6 mmol/L	± 12% > 1.6 mmol/L
114	Troponin I	± 0.2 ng/mL ≤ 2.0 ng/mL	± 10% > 2.0 ng/mL
115	Troponin T	± 0.1 ng/mL ≤ 1.0 ng/mL	± 10% > 1.0 ng/mL
116	Urate	± 0.03 mmol/L ≤ 0.38 mmol/L	± 8% > 0.38 mmol/L
117	Urea	± 0.5 mmol/L ≤ 4.0 mmol/L	± 12% > 4.0 mmol/L
118	Carbamazepine	± 2.0 umol/L ≤ 20.0 umol/L	± 10% > 20.0 umol/L
119	Digoxin	± 0.2 nmol/L ≤ 2.0 nmol/L	± 10% > 2.0 nmol/L
120	Gentamicin	± 0.5 mg/L ≤ 5.0 mg/L	± 10% > 5.0 mg/L
121	Paracetamol	± 20 umol/L ≤ 200 umol/L	± 10% > 200 umol/L
122	Phenobarbitone	± 3.0 umol/L ≤ 30.0 umol/L	± 10% > 30.0 umol/L

123	Phenytoin	± 3.0 umol/L ≤ 30.0 umol/L	± 10% > 30.0 umol/L
124	Quinidine	± 2.0 umol/L ≤ 20.0 umol/L	± 10% > 20.0 umol/L
125	Salicylate	± 0.1 mmol/L ≤ 1.0 mmol/L	± 10% > 1.0 mmol/L
126	Theophylline	± 3.0 umol/L ≤ 30.0 umol/L	± 10% > 30.0 umol/L
127	Valproate	± 25 umol/L ≤ 250 umol/L	± 10% > 250 umol/L
128	Vancomycin	± 2.0 mg/L ≤ 20.0 mg/L	± 10% > 20.0 mg/L
129	Hemoglobin A1C	± 0.5 ≤ 10%	± 5% > 10%
130	IGF-1	± 3 nmol/L ≤ 20.0 nmol/L	± 15% > 20.0 nmol/L
131	C Peptide	± 1.0 nmol/L ≤ 10 nmol/L	± 10% > 10 nmol/L
132	Albumin	± 2.0 g/L ≤ 20.0 g/L	± 10% > 20.0 g/L
133	Alkaline Phosphatase	± 15 U/L ≤ 100 U/L	± 15% > 100 U/L
134	ALT	± 8 U/L ≤ 60 U/L	± 15% > 60 U/L
135	Amylase	± 15 U/L ≤ 100 U/L	± 15% > 100 U/L
136	AST	± 8 U/L ≤ 60 U/L	± 15% > 60 U/L
137	Bicarbonate	± 2.0 mmol/L ≤ 20.0 mmol/L	± 10% > 20.0 mmol/L
138	Bilirubin	± 5.0 umol/L ≤ 50.0 umol/L	± 10% > 50.0 umol/L
139	Calcium	± 0.1 mmol/L	
140	Chloride	± 3 mmol/L	
141	Cholesterol	± 0.50 mmol/L ≤ 10.0 mmol/L	± 5% > 10.0 mmol/L
142	Creatinine Kinase	± 15 U/L ≤ 100 U/L	± 15% > 100 U/L
143	Creatinine	± 0.01 mmol/L ≤ 0.1 mmol/L	± 10% > 0.1 mmol/L
144	Glucose	± 0.5 mmol/L ≤ 5.0 mmol/L	± 10% > 0.1 mmol/L
145	Creatinine	± 0.01 mmol/L ≤ 0.1 mmol/L	± 10% > 5.0 mmol/L
146	GGT	± 8 U/L ≤ 60 U/L	± 15% > 60 U/L
147	hCG-quantitative	± 3 IU/L ≤ 20 IU/L	± 15% > 20 IU/L

148	hCG-qualitative	neg ≤ 20 IU/L	pos > 30 IU/L
149	HDL Cholesterol	± 0.2 mmol/L ≤ 2.0 mmol/L	± 10% > 2.0 mmol/L
150	Lactate Dehydrogenase	± 30 U/L ≤ 200 U/L	± 15% > 200 U/L
151	Magnesium	± 0.12 mmol/L	
152	Potassium	± 2.0 mmol/L	
153	Protein (total)	± 5.0 g/L	
154	Sodium	± 3.0 mmol/L	
155	Triglyceride	± 0.2 mmol/L ≤ 2.0 mmol/L	± 10% > 2.0 mmol/L
156	Urate	± 0.050 mmol/L	
157	Urea	± 1.0 mmol/L ≤ 10.0 mmol/L	± 10% > 10.0 mmol/L
158	Total Bilirubin	± 15 umol/L ≤ 150 umol/L	± 10% > 150 umol/L
159	Conjugated Bilirubin	± 10 umol/L ≤ 50 umol/L	± 20% > 50 umol/L
160	Urine ALA	± 5 umol/L ≤ 20 umol/L	± 25% > 20.0 umol/L
161	Urine Porphobilinogen	± 5 umol/L ≤ 25 umol/L	± 20% > 25 umol/L
162	(Quantitative)		
163	Urine Porphobilinogen	neg ≤ 10 umol/L	+ 10-50 umol/L
164	Qualitative		++ 51-100 umol/L
165			+++ > 100 umol/L
166	Urine Total Porphyrin	± 15 nmol/L ≤ 100 nmol/L	± 15% > 100 nmol/L
167	Faecal Percent Dry Weight	± 1 ≤ 10%	± 10% > 10%
168	Faecal Total Porphyrin	± 15 umol/kg ≤ 100 umol/kg	± 15% > 100 umol/kg
169	Plasma Total Porphyrin	± 3 nmol/L ≤ 20 nmol/L	± 15% > 20 nmol/L
170	RBC Total Porphyrin	± 0.3 umol/L rc ≤ 2.0 umol/L rc	± 15% > 2.0 umol/L rc
171	Cholesterol	± 0.50 mmol/L ≤ 10.0 mmol/L	± 5% > 10.0 mmol/L
172	HDL Cholesterol	± 0.20 mmol/L ≤ 2.0 mmol/L	± 10% > 2.0 mmol/L

173	Triglyceride	± 0.20 mmol/L ≤ 2.0 mmol/L	± 10% > 2.0 mmol/L
174	Apolipoprotein A1	± 0.2 g/L ≤ 2.0 g/L	± 10% > 2.0 g/L
175	Apolipoprotein B	± 0.2 g/L ≤ 2.0 g/L	± 10% > 2.0 g/L
176	Amiodarone	± 0.2 umol/L ≤ 2.0 umol/L	± 10% > 2.0 umol/L
177	Amitriptyline	± 10 umol/L ≤ 100 umol/L	± 10% > 100 umol/L
178	Disopyramide	± 2.0 umol/L ≤ 20 umol/L	± 10% > 20 umol/L
179	Ethosuximide	± 3 umol/L ≤ 30 umol/L	± 10% > 30 umol/L
180	Lignocaine	± 2.0 umol/L ≤ 20 umol/L	± 10% > 20 umol/L
181	Methotrexate	± 0.1 umol/L ≤ 1.0 umol/L	± 10% > 1.0 umol/L
182	Nortriptyline	± 10 nmol/L ≤ 100 nmol/L	± 10% > 100 nmol/L
183	Quinidine	± 2.0 umol/L ≤ 20 umol/L	± 10% > 20 umol/L
184	Tricyclic Antidepressants	± 10 nmol/L ≤ 100 nmol/L	± 10% > 100 nmol/L
185	Sweat Sodium	± 2 mmol/L ≤ 20 mmol/L	± 10% > 20 mmol/L
186	Sweat Chloride	± 2 mmol/L ≤ 20 mmol/L	± 10% > 20 mmol/L
187	Sweat Sweat Conductivity	± 2 mmol/L ≤ 20 mmol/L	± 10% > 20 mmol/L
188	ACTH	± 2.0 pmol/L; ≤ 20 pmol/L	± 10%; > 20 pmol/L
189	Alpha-fetoprotein	± 5 kIU/L; ≤ 25 kIU/L	± 20% > 25 kIU/L
190	Calcitonin	± 2 ng/L ≤ 20 ng/L	± 10% > 20 ng/L
191	CEA	± 2.0 ug/L ≤ 10.0 ug/L	± 20% > 10.0 ug/L
192	CA125	± 20 kU/L ≤ 50 kU/L	± 20% > 50 kU/L
193	CA15-3	± 3 kU/L ≤ 20 kU/L	± 15% > 20 kU/L
194	CA19-9	± 3 kU/L ≤ 20 kU/L	± 15% > 20 kU/L
195	hCG	± 3 IU/L ≤ 20 IU/L	± 15% > 20 IU/L
196	Beta-2 Microglobulin	± 0.2 mg/L ≤ 2.0 mg/L	± 10% > 2.0 mg/L
197	NSE	± 2.0 ug/L ≤ 20 ug/L	± 10% > 20 ug/L

198	Prolactin	± 20 mU/L ≤ 100 mU/L	± 20% > 100 mU/L
199	Total PSA	± 1.5 ug/L ≤ 10.0 ug/L	± 15% > 10.0 ug/L
200	Urine Albumin	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
201	Urine Calcium	± 0.20 mmol/L	
202	Urine Chloride	± 2.0 mmol/L ≤ 20.0 mmol/L	± 10% > 20.0 mmol/L
203	Urine Creatinine	± 0.5 mmol/L ≤ 5.0 mmol/L	± 10% > 5.0 mmol/L
204	Urine DPD (Total)	± 15 nmol/L ≤ 80 nmol/L	± 15% > 80 nmol/L
205	Urine DPD (Free)	± 15 nmol/L ≤ 80 nmol/L	± 15% > 80 nmol/L
206	Urine Glucose	± 1.0 mmol/L ≤ 10.0 mmol/L	± 10% > 10.0 mmol/L
207	Urine hCG-qualitative	neg ≤ 20 IU/L	pos > 30 IU/L
208	Urine hCG-quantitative	± 5 IU/L ≤ 50 IU/L	± 10%; > 50 IU/L
209	Urine Hydroxyproline	± 10 umol/L ≤ 100 umol/L	± 10%; > 100 umol/L
210	Urine Magnesium (serum)	± 0.12 mmol/L	
211	Urine N-Telopeptides	± 80 nmolBCE/L ≤ 700 nmolBCE/L	± 10% > 700 nmolBCE/L
212	Urine Osmolality	± 6 mmol/kg ≤ 300 mmol/kg	± 2% > 300 mmol/kg
213	Urine Potassium	± 2.0 mmol/L ≤ 20.0 mmol/L	± 10% > 20.0 mmol/L
214	Urine Phosphate	± 2.5 mmol/L	
215	Urine Sodium	± 2.0 mmol/L ≤ 20.0 mmol/L	± 10% > 20.0 mmol/L
216	Urine Total Protein	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
217	Urine Urate	± 0.3 mmol/L	
218	Urine Urea	± 20 mmol/L ≤ 200 mmol/L	± 10% > 200 mmol/L
219	CSF Albumin	± 0.10 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
220	CSF Glucose	± 1.0 mmol/L ≤ 10 mmol/L	± 10% > 10.0 mmol/L
221	CSF Immunoglobin G	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
222	CSF Lactate	± 0.1 mmol/L ≤ 1.0 mmol/L	± 10% > 1.0 mmol/L

223	CSF Total Protein	± 0.1 g/L ≤ 1.0 g/L	± 10% > 1.0 g/L
224	Whole Blood Chloride	± 3.0 mmol/L	
225	Whole Blood Glucose	± 1.0 mmol/day ≤ 10.0 mmol/day	± 10% > 10.0 mmol/day
226	Whole Blood Ionised Calcium	± 0.05 mmol/L	
227	Whole Blood Lactate	± 1.0 mmol/day ≤ 10.0 mmol/day	± 10% > 10.0 mmol/day
228	Whole Blood pH	± 0.04	
229	Whole Blood pCO_2	± 2.0 mm Hg ≤ 25.0 mm Hg	± 8% > 25.0 mm Hg
230	Whole Blood pO_2	± 5 mm Hg ≤ 100 mm Hg	± 5% > 100 mm Hg
231	Whole Blood Potassium	± 0.2 mmol/L	
232	Whole Blood Sodium	± 3.0 mmol/L	
233	Urine hCG	neg ≤ 20 IU/L	pos > 30 IU/L
234	Vitamin A	± 0.3 umol/L ≤ 3.0 umol/L	± 10% > 3.0 umol/L
235	Vitamin E	± 5.0 umol/L ≤ 50.0 umol/L	± 10% > 50.0 umol/L
236	Beta Carotene	± 0.2 umol/L ≤ 20.0 umol/L	± 10% > 20.0 umol/L
237	Total Carotenoids	± 0.4 umol/L ≤ 4.0 umol/L	± 10% > 4.0 umol/L