

Biochemistry in-house tests: Reference ranges and turnaround times (TATs)

Test name	Units	Sex	Conditions influencing interpretation	LLN	ULN	TAT <i>Days refer to Mon - Fri</i>
25-OH VITAMIN D (Total)	nmol/L		Sufficient	75	250	4hrs
			Insufficient	50	75	4hrs
			Deficient	<50		4hrs
			Potential Toxicity		>250	4hrs
ACTH	ng/L			4.8	48.8	1 day
ALANINE AMINOTRANSFERASE	U/L	M			<50	4hrs
	U/L	F			<35	4hrs
ALBUMIN	g/L			35	50	4hrs
ALKALINE PHOSPHATASE	U/L			30	130	4hrs
ALPHA-FETOPROTEIN	kU/L				<7.22	4hrs
AMIKACIN	mg/L					4hrs
Target pre-dose (trough level <5mg/L)						
AMMONIA	umol/L			9	30	4hrs
AMYLASE	U/L			30	110	4hrs
ANDROSTENEDIONE	nmol/L	M	<21 years	1.5	9.3	1 day
			>21 years	1.7	12.2	1 day
		F	<21 yrs.	2.4	15	1 day
			Pre-menopausal	1.4	11.9	1 day
			Post-menopausal	0.3	7.3	1 day
Apo-A1	g/L	M		1.1	1.7	2 days
		F		1.2	1.9	2 days
Apo-B	g/L	M		0.8	1.55	2 days
		F		0.75	1.5	2 days
ASPARTATE AMINOTRANSFERASE	U/L	M		0	59	4hrs
		F		0	36	4hrs
BETA 2 MICROGLOBULIN	mg/L			0.8	2.34	1 day
BICARBONATE	mmol/L			22	29	4hrs
BILIRUBIN Conjugated	umol/L			0	5	4hrs
BILIRUBIN Total	umol/L				<21	4hrs
BILIRUBIN Unconjugated	umol/L			0	19	4hrs
C3	g/L			0.81	1.57	2 days
C4	g/L			0.13	0.39	2 days
CA125	kU/L				<36	4hrs
CA15-3	kU/L				<36	4hrs
CA19-9	kU/L				<38	4hrs
CAERULOPLASMIN	g/L			0.2	0.6	2 days
CALCIUM + Adjusted Ca	mmol/L			2.2	2.60	4hrs
CARCINO-EMBRYONIC ANTIGEN	ug/L		Non-smokers		<4	4hrs
			Smokers		<6	4hrs
CHLORIDE	mmol/L			95	108	4hrs
CHOLESTEROL	mmol/L			1.29	5.10	4hrs
CORTISOL	nmol/L		Before 10am	123	626	4hrs

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CORTISOL	nmol/L		After 5 pm	46	389	4hrs
C-REACTIVE PROTEIN	mg/L				<10	4hrs
CREATINE KINASE	U/L	M		40	320	4hrs
		F		25	200	4hrs
CREATININE	umol/L	M		58	110	4hrs
	umol/L	F		46	92	4hrs
DHEAS	umol/L	M	<20 years	0.6	10.8	1 day
			20 - 29 years	4.4	15.2	1 day
			30 - 39 year	3.4	13.1	1 day
			40 - 49 years	2.6	10.6	1 day
			50 - 59 years	1.6	8.4	1 day
			>60 years	1.1	11.0	1 day
DHEAS	umol/L	F	<20 years	0.4	5.1	1 day
			20 - 29 years	2.2	9.2	1 day
			30 - 39 year	1.6	6.2	1 day
			40 - 49 years	1.3	6.7	1 day
			50 - 59 years	0.9	5.8	1 day
			>60 years	1.7	3.4	1 day
FERRITIN	ug/L	M	M	18	464	4hrs
		F	<50 years	6	137	4hrs
			>50 years	11	264	4hrs
FOLATE	ug/L			2.76	20	4hrs
FREE PSA	ug/L			0	0.86	4hrs
FREE THYROXINE – FT4	pmol/L			10.9	25.3	4hrs
FREE TRIIODOTHYRONINE- FT3	pmol/L			4.26	8.10	4hrs
FSH	IU/L	M		1.55	9.74	4hrs
		F	Follicular phase	1.98	11.6	4hrs
			Mid-cycle peak	5.14	23.4	4hrs
			Luteal phase	1.38	9.58	4hrs
			Post-menopausal	21.5	131	4hrs
GAMMA GLUTAMYL TRANSFERASE	U/L	M		0	73	4hrs
		F		0	43	4hrs
GENTAMICIN	mg/L					4hrs
Target pre-dose (trough) level <1mg/L						
GH	ug/L	M		0	1.23	1 day
		F		0.1	6.9	1 day
GLUCOSE	mmol/L			4.1	5.9	4hrs
GLUCOSE - CSF	mmol/L			2.2	3.9	4hrs
HCG - beta	IU/L				<4.9	4hrs
HDL CHOLESTEROL	mmol/L			1.03	1.55	4hrs
hs TROPONIN I	ug/L	M			<13	4hrs
	ug/L	F			<10	4hrs
IgA	g/L			0.85	4.99	1 day
IGF-1	ng/mL					1 day

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Extensive age and sex related ranges for IGF-1 available from the laboratory						
IgG	g/L			6.1	4.99	1 day
IgM	g/L			0.35	2.42	1 day
INSULIN	mIU/L			2.3	26	4hrs
IRON	umol/L	M		8.8	32.4	4hrs
		F		6.6	30.4	4hrs
IRON BINDING CAPACITY	umol/L	M		47	83	4hrs
		F		47	89	4hrs
Kappa/Lambda RATIO				0.26	1.65	1 day
KAPPA free light chains	mg/L			3.3	19.4	1 day
LACTATE DEHYDROGENASE	U/L			120	246	4hrs
LACTATE DEHYDROGENASE - CSF	U/L					4hrs
LAMBDA free light chains	mg/L			5.71	26.3	1 day
LH	IU/L	F	Follicular phase	2.58	12.1	4hrs
			Mid-cycle peak	27.3	96.9	4hrs
			Luteal phase	0.8	15.5	4hrs
			Post-menopausal	13.1	86.5	4hrs
MACROPROLACTIN	mIU/L					7 days
MAGNESIUM	mmol/L			0.7	1.0	4hrs
NT-pro BNP	ng/L					4hrs
Levels < 400 ng/L in an untreated person makes a diagnosis of heart failure less likely						
https://www.nice.org.uk/guidance/ng106						
OESTRADIOL	pmol/L	M		20	242	4hrs
		F	Follicular phase	98	592	4hrs
			Pre-ovulatory phase	685	1404	4hrs
			Luteal phase	120	738	4hrs
			Post-menopausal	20	141	4hrs
PARATHYROID HORMONE(intact)	pmol/L			1.4	9.1	4hrs
PHOSPHATE	mmol/L			0.8	1.5	4hrs
POTASSIUM	mmol/L			3.5	5.3	4hrs
PROGESTERONE	nmol/L	M		0.7	4.9	4hrs
		F	Follicular phase	0.4	6.5	4hrs
			Luteal phase	4.5	52.9	4hrs
			Post-menopausal	0.5	3.31	4hrs
PROLACTIN	mIU/L	M		87	392	1 day
		F	Pre-menopausal	132	498	
			Post-menopausal	90	392	
PROTEIN-CSF	mg/L			120	600	4hrs
RHEUMATOID FACTOR	kiU/L				<12	4hrs
Serum Osmolality	mmol/kg			275	295	4hrs
SHBG	nmol/L	M	19 – 49 years	14	71	
			>50 years	21	101	
		F	19-49 years	19	149	
			>50 years	20	148	

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SODIUM	mmol/L			133	146	4hrs
TESTOSTERONE	nmol/L	M		8	26	4hrs
All results <10 nmol/L automatically verified by LCMS						15 days
TESTOSTERONE	nmol/L	F			<2.8	4hrs
All results >2.8 nmol/L automatically verified by LCMS						15 days
TOTAL PROTEIN	g/L			60	80	4hrs
TOTAL PSA	ug/L	M		4	10	4hrs
			40 – 49 years		<2.5	
			50 – 59 years		<3.5	
			60-69 years		<4.5	
			70-79 years		<6.5	
Total PSA – results on patients <40 years or >80 Years should be interpreted in relation to clinical status (NICE 2021)						
TRIGLYCERIDE	mmol/L			0.11	1.69	4hrs
TSH	mIU/L		>22 years	0.40	1.05	4hrs
TSH	mIU/L		<22 years	0.73	4.40	4hrs
UREA	mmol/L			2.5	7.8	4hrs
URIC ACID	umol/L	M		200	430	4hrs
URIC ACID	umol/L	F		140	360	4hrs
Urine Osmolality	mOsm/kg					4hrs
VANCOMYCIN	mg/L					4hrs
Target trough level is 10 – 20 mg/L. Trough levels of 15 – 20 mg/L are recommended in serious PROVEN MRSA infections, HAP, osteomyelitis, CNS infections, endocarditis, bacteraemia and if specifically advised by the Microbiologist.						
VITAMIN B12	pmol/L			239	931	4hrs

References:

1. Pathology Harmony Group, Clinical Biochemistry Outcomes, January 2011
2. Manufacturer's clinical range. Information obtained from Instructions for use.
3. The London Clinic's antimicrobial guide, 2025 Mabhakablov