C-Peptide

Description	C-peptide is released by pancreatic ß cells during the synthesis of insulin.
Indication	Investigation of the cause of hypoglycaemia i.e. endogenous insulin production or exogenous insulin administration (in conjunction with serum insulin level).
Additional Info	Proteolytic cleavage of proinsulin prior to secretion produces the mature insulin molecule and the connecting peptide (C-peptide). C-peptide is secreted in equimolar quantities to insulin but has a longer half-life than insulin and circulates in higher molar concentrations in peripheral blood, making it less prone to fluctuations. C-peptide has no biological activity. It is degraded and excreted by the kidneys, hence raised concentrations may occur in renal impairment.
Concurrent Tests	Plasma glucose to confirm hypoglycaemia. Serum insulin and serum ketones where appropriate.
Dietary Requirements	N/A
Interpretation	<u>Interpretation of C-peptide with concurrent plasma insulin</u>: • Raised C-peptide, raised insulin: Islet cell tumours, sulphonylurea-induced, autoimmune insulin syndrome, drug-induced. • Low C-peptide, low insulin: CRF, liver disease, non-islet cell tumours, endocrine deficiencies, drug-induced, alcohol-induced, anorexia nervosa. • Low C-peptide, raised insulin: Insulin administration, insulin receptor antibodies (IR-A). <u>Measurement of ß-cell function</u>: • To distinguish between Type 1 and Type 2 diabetes, C-peptide <0.2nmol/L and C-peptide <0.5nmol/L 6min post 1mg iv glucagon (DCCT trial cut-offs). Note: interpret low results with caution as endogenous secretion may be suppressed by long-term treatment with exogenous insulin.
Collection Conditions	Fasting sample (where appropriate) or sample collected during hypoglycaemic attack. <u>Inpatients</u>: Sample must be received in laboratory within 30 minutes of venepuncture. <u>External hospitals</u>: Separate serum within 30 minutes of collection and freeze immediately. Send samples frozen.
Frequency of testing	As required, contact lab for urgent requests.