

CONTENTS

Thyroid hormone metabolism

p 1-3

Glucose homeostasis

p 4-6

Publications – thyroid hormone metabolism

1. Hume R, Williams FLR. Iodine deficiency due to parenteral nutrition. In: Comprehensive Handbook on Iodine: Nutritional, Endocrine and Pathological Aspects. Preedy VR, Burrow GN, Watson RR. (Eds) Ch 40. 2009.
2. Hume R, Lang K, Williams FLR. Iodine deficiency due to artificial enteral nutritional support. In: Comprehensive Handbook on Iodine: Nutritional, Endocrine and Pathological Aspects. Preedy VR, Burrow GN, Watson RR. (Eds) Ch 41. 2009.
3. Williams FLR, Hume R. (2008) Perinatal factors affecting thyroid hormone status in extreme preterm infants. *Sem Perinatol* 32:398-402.
4. Williams FLR, Visser TJ, Hume R. (2006) Transient hypothyroxinaemia in preterm infants. *Early Hum Devel* 82:797-802.
5. Stanley EL, Hume R, Coughtrie MWH. (2005) Expression profiling of human fetal cytosolic sulfotransferases involved in steroid and thyroid hormone metabolism and in detoxification. *Mol Cell Endocrinol* 240:32-42
6. Williams FLR, Ogston SA, Toor van H, Visser TJ, Hume R with collaboration from the Scottish Preterm Thyroid Group (2005). Serum thyroid hormones in preterm infants; associations with postnatal illnesses and drug usage. *J Clin Endocrinol Metab* 2005; 90:5954-5963.
7. Williams FLR, Mires GJ, Barnett C, Ogston SA, van Toor H, Visser TJ, Hume R (2005) Transient hypothyroxinaemia in preterm infants; the role of cord sera thyroid hormone levels adjusted for prenatal and intrapartum factors. *J Clin Endocrinol Metab* 90:4599-4606.
8. Simpson J, Williams FLR, Delahunty C, Ogston SA, van Toor H, Wu S-Y, Visser TJ, Hume R with collaboration from the Scottish Preterm Thyroid Group. (2005) Serum thyroid hormones in preterm infants and relationships to indices of severity of intercurrent illness. *J Clin Endocrinol Metab* 90, 1271-1279
9. Hume R, Williams FLR, Visser TJ (2005) Transient hypothyroxinaemia and preterm infant brain development. *Thyroid International* 2.
10. Stanley EL, Hume R and Coughtrie MWH (2005) Sulfotransferases in the human fetus and neonate. In *Cytosolic human sulfotransferases* Eds Pacifici GM and Coughtrie MWH Taylor and Francis, London. pp 105-120.
11. Stanley EL, Hume R, Coughtrie MWH. (2005) Expression profiling of human fetal cytosolic sulfotransferases involved in steroid and thyroid hormone metabolism and in detoxification. *Mol Cell Endocrinol* 240:232-242.
12. Murphy N, Hume R, van Toor H, Matthews TG, Wu S-Y, Visser TJ, Williams FLR (2004) The hypothalamic-pituitary-thyroid axis in preterm infants;

responsiveness to birth over the first 24 hours of life. *J Clin Endocrinol Metab* 89(6):2824–2831.

13. Hume R, Simpson J, Delahunty C, van Toor H, Wu S-Y, Williams FLR, Visser TJ with collaboration from the Scottish Preterm Thyroid Group. (2004) Human fetal and cord serum thyroid hormones: developmental trends and interrelationships. *J Clin Endocrinol Metab* 89: 4097–4103.
14. Williams FLR, Simpson J, Delahunty C, Ogston SA, Bongers-Schokking JJ, Murphy N, van Toor H, Wu S-Y, Visser TJ, Hume R with collaboration from the Scottish Preterm Thyroid Group. (2004) Developmental trends in cord and postpartum serum thyroid hormones in preterm infants. *J Clin Endocrinol Metab* 89:5314-5320.
15. Kester MHA, de Mena RM, Obregon MJ, Marinkovic D, Howatson A, Visser TJ, Hume R, Morreale de Escobar GM. (2004) Iodothyronine levels in the human developing brain: major regulatory roles of iodothyronine deiodinases in different areas. *J Clin Endocrinol Metab* 89:3117-3128
16. Hume R. (2003) Neurodisability: metabolic and hormonal aspects. *Dev Med Child Neurol* 45: 14-17 Suppl 95.
17. Ibrahim M, Morreale de Escobar G, Visser TJ, Durán S, van Toor H, Strachan J, Williams FLR, Hume R (2003) Iodine deficiency associated with parenteral nutrition in extreme preterm infants. *Arch Dis Child*.88:F56–F57.
18. Hume R. (2002) Iodothyronine metabolism and human brain. In “Thyroid and Brain” eds Morreale de Escobar G, de Vijlder JJM, Butz S, Hostalek U. Merck European Thyroid Symposium, Sevilla Schattauer Verlag, Stuttgart pp 189-195
19. Hume R. (2002) “Iodothyronine metabolism and human brain”. In “Thyroid and Brain” eds Morreale de Escobar G, de Vijlder JJM, Butz S, Hostalek U. Merck European Thyroid Symposium, Sevilla Schattauer Verlag, Stuttgart pp 189-195.
20. Hume R. (2002) Thyroid hormones and lung development (editorial website European Thyroid Association) www.hotthyroidology.com
21. Barnett CA, Visser TJ, Williams F, van Toor H, Duran S, Presas MJ, Morreale de Escobar G, Hume R. Inadequate iodine intake of 40% of pregnant women from a region in Scotland. *J Endocrinol Invest* 2002; 25 (Suppl): 90.
22. Stanley EL, Hume R, Visser TJ, Coughtrie MWH. (2001) Differential expression of sulfotransferases enzymes involved in thyroid hormone metabolism during human placental development *J Clin Endocrinol Metab*. 86: 5944-5955.
23. Hume R, Richard K, Kaptein E, Stanley EL, Visser TJ, Coughtrie MWH (2001) Thyroid hormone metabolism and the developing human lung. *Biol Neonate* 80 (supplement 1):18-21.
24. Richard K, Hume R, Kaptein E, Stanley EL, Visser TJ, Coughtrie MWH. (2001) Sulfation of thyroid hormone and dopamine during human development-ontogeny of phenol sulfotransferases and arylsulfatase in liver, lung and brain *J Clin Endocrinol Metab* . 86:2734-2742
25. Delahunty C, Simpson J, Richard K, Coughtrie M, Williams FW, Murphy N, Matthews T, Visser T, Hume R. (2001) Transient hypothyroxinemia in preterm

infants *Developmental Medicine and Child Neurology Supplement Neuroprotection of the Infant Brain* 43: 26-27 Suppl. 86.

26. Hume R, Richard K, Kaptein E, Stanley EL, Visser TJ, Coughtrie MWH (2001) Thyroid hormone metabolism and the developing human lung. *Biol Neonate* 2001;80 (suppl 1): 18–21.
27. Murphy N, Delahunty C, Richard K, Matthews T, Coughtrie M, Visser T, Hume R. (2000) Iodothyronine metabolism and human brain development. *Ambulatory Child Health* 6 Supplement 1, 15-16
28. Richard K, Hume R, Kaptein E, Sanders JP, de Herder WW, den Hollander JC, Krenning EP, and Visser TJ. (1998) Ontogeny of type I and type III iodothyronine deiodinases in human liver. *J Clin Endocrinol Metab* 83, 2868-2874.
29. Forfar JO, Hume R, McPhail FM, Maxwell SM, Wilkinson EM, Lin J-P and Brown JK. (1994) Low birthweight : A ten year outcome study of the continuum of reproductive casualty. *Dev. Med. Child Neurol.* 36: 1037-1048.

Original research – glucose homeostasis

1. Forsyth L, Scott HM, Howatson A, Busuttil A, Hume R, Burchell A (2007) Genetic variation in hepatic glucose-6-phosphatase system genes in cases of sudden infant death syndrome. *J Pathol* 212: 112-120
2. Forsyth L, Hume R, Howatson A, Busuttil A, Burchell A. (2005) Identification of novel polymorphisms in the glucokinase and glucose-6-phosphatase genes in infants who died suddenly and unexpectedly. *J Mol Med* 83:610-618
3. Hume R, Burchell A, Williams FLR, Koh DKM (2005) Glucose homeostasis in the newborn. *Early Human Development* 81, 95–101
4. Jackson L, Williams FLR, Burchell A, Coughtrie MWH, Hume R (2004) Plasma catecholamines and the counter-regulatory responses to hypoglycaemia in infants: a critical role for epinephrine and cortisol. *J Clin Endocrinol Metab* 89:6251 – 6256
5. Jackson L, Burchell A, McGeechan A, Hume R. (2003) An inadequate glycaemic response to glucagon is linked to insulin resistance in preterm infants? *Arch Dis Child*. 88:F62-F66.
6. Hume R, McGeechan A, Burchell A (2000) Perinatal factors influencing hepatic glucose-6-phosphatase enzyme activity. *J Perinatology* .20: 301-306.
7. Burchell A, McGeechan A and Hume R (2000) Therapeutic insulin and hepatic glucose-6-phosphatase enzyme activity in preterm infants. *Arch Dis Child Fetal Neonatal Ed.* 82: F228-F232.
8. Hume R, McGeechan A and Burchell A (1999) Failure to detect preterm infants at risk of hypoglycaemia prior to discharge home. *J Pediatr* 134, 499-502.
9. Clarke DJ, Moghrabi N, Monaghan G, Cassidy A, Boxer M, Hume R and Burchell B (1997) Genetic defects of the UDP-glucuronosyltransferase-1 (UGT1) gene that cause familial non-haemolytic unconjugated hyperbilirubinaemias *Clinica Chimica Acta* 266, 63-74.
10. Burchell A, Watkins SL, Hume R (1996) The human fetal testis endoplasmic reticulum glucose-6-phosphatase enzyme protein. *Biology of Reproduction* 55, 298-303.
11. Hume R and Burchell A (1996). The glucose-6-phosphatase enzyme in developing human trachea and oesophagus. *Histochemical J.* 28,141-147.
12. Hume R, Voice M, Pazouki S, Giunti R, Benedetti A and Burchell A (1995) The human adrenal microsomal glucose-6-phosphatase system *J. Clin. Endocrinol. Metab.* 80: 1960-1966.
13. Burchell A, Allan BB and Hume R (1994) The endoplasmic reticulum glucose- 6-phosphatase proteins. *Molecular Membrane Biology* 11: 217-227.
14. Steel JM, Johnstone FD, Hume R and Mao J-H (1994). Insulin requirements during pregnancy in insulin dependent diabetic women. *Obstet. Gynecol.* 83:253-258.

15. Hume R, Bell J, Hallas A and Burchell A. (1994) Immunohistochemical localisation of glucose-6-phosphatase in developing human kidney. *Histochemistry* 101: 413-417.
16. Lyall H, Burchell A, Howie PW, Ogsten S and Hume R. (1994). Early detection of metabolic abnormalities in preterm infants impaired by disorders of blood glucose concentration. *Clin. Chem.* 40, 526-530.
17. Bell JE, Hume R, Busuttil A and Burchell A (1993). Immunocytochemical detection of the microsomal glucose-6-phosphatase in human brain astrocytes. *Neuropath. Appl. Neurobiol.* 19, 429-435.
18. Hume R and Burchell A (1993). Abnormal expression of glucose-6-phosphatase in preterm infants. *Arch. Dis. Child.* 68, 202-204.
19. Burchell A, Lyall, H, Busuttil A, Bell J and Hume R (1992). Glucose metabolism and Hypoglycaemia in SIDS. *J. Clin. Pathol.* 45, (supplement):39-45.
20. Nordlie, R.C., Scott, H.M., Waddell, I.D., Hume, R. & Burchell, A. (1992) Analysis of human hepatic microsomal glucose-6-phosphatase in clinical conditions where the T2 pyrophosphate/phosphate transport protein is absent. *Biochem. J.* 281, 859-863.
21. Hume, R., Lyall, H. & Burchell, A. (1992) Impairment of the activity of the microsomal glucose-6-phosphatase system in premature infants. *Acta Paediatr.* 81, 580-584
22. Coughtrie MWH, Blair JNR, Hume R & Burchell A. (1991) Improved procedure for the preparation of hepatic microsomes to be used in the in-vitro diagnosis of inherited disorders of the glucose-6-phosphatase system. *Clin. Chem.* 37,739-742
23. Burchell A, Gibb L, Waddell ID, Giles M and Hume R (1990) The ontogeny of the human hepatic microsomal glucose-6-phosphatase proteins. *Clin. Chem.* 36, 1633-1637.
24. Coughtrie MWH, Ask B, Rane A, Burchell B & Hume R (1989) The enantioselective glucuronidation of morphine in rats and humans. *Biochem. Pharmacol.* 38: 3273-3280.
25. Burchell A, Bell JE, Busuttil A & Hume R (1989) The hepatic microsomal glucose-6-phosphatase system in cases of sudden infant death syndrome. *Lancet* ii, 291-294.
26. Burchell A, Waddell ID, Stewart L & Hume R (1989) Perinatal diagnosis of type 1c glycogen storage disease. *J. Inher. Metab. Dis.* 12, 315-317.
27. Waddell ID, Hume R & Burchell A (1989) A direct method for the diagnosis of human hepatic type 1b and 1c glycogen storage disease. *Clin. Sci.* 76: 573-579.
28. Burchell A, Waddell ID, Countaway JL, Arion WJ & Hume R (1988) Identification of human hepatic microsomal glucose-6-phosphatase enzyme. *FEBS Lett.* 242: 153-156.
29. Coughtrie MWH, Burchell B, Leakey JEA & Hume R (1988) The inadequacy of perinatal glucuronidation. Immunoblot analysis of the developmental expression

of individual UDP-glucuronosyl transferase isoenzymes in rat and human liver microsomes. *Mol. Pharm.* 34: 729-735.

30. Burchell A, Hume R & Burchell B (1988) A new microtechnique for the analysis of the human hepatic microsomal glucose-6-phosphatase system. *Clin. Chem. Acta.* 173: 183-192.