(Jones, Clemmons, Endocrine Rev. 16 (1995) 3–34). To test their importance in the chicken, two experimental models obtained by divergent selection were studied. Chickens with either a high (HG) or low (LG) growth rate (Ricard, Ann. Genet. Sel. Anim. 7 (1975) 427–443) were compared at 1 and 6 weeks of age. Fat and Lean chickens (Leclercq et al., Br. Poult. Sci. 21 (1980) 107–113) were compared at 9 weeks of age in the fed and the fasted state. Following their extraction from plasma or serum to eliminate IGFBPs interference, IGF-I and IGF-II were measured by a radio-immunoassay with specific antibodies. Three circulating IGFBPs with molecular weights of 28, 34 and 40–42 kDa (designated IGFBP-28, -34 and -40, respectively) were detected by western ligand blotting and the intensity of each band was quantified using a Phosphoimager (Storm 840, Molecular Dynamics). IGF-I and IGF-II increased with age and were higher in HG compared to LG chickens. IGF-I and, to a lower extent IGF-II, decreased following a 48-h fasting period and altogether, IGF-I and IGF-II were higher in Fat compared to Lean chickens. Two of the IGFBPs (-34 and -40) increased with age in growth-selected lines. IGFBP-34 was higher in HG than LG chickens at 6 weeks of age. IGFBP-28 and -34 (to a lower extent) increased in the fasted state in Fat and Lean chickens. In the fasted state, IGFBP-34 was lower in Fat chickens. We conclude that, in the chicken, IGFs and IGFBPs vary with age, nutritional state and genotype. IGFs and IGFBP-34 and -40 increase with age. IGFs are down-regulated, and IGFBP-28 and -34 are up-regulated by fasting, as in mammalian species. In two genotypes with different growth rates, higher IGFs levels correspond to higher growth rates, whereas in two genotypes which differ only for body composition, higher IGF levels correspond to an increased fat deposition.

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**Isolation of pure Glucagon Islets of Langerhans from Chicken Pancreas.**

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In contrast to mammals, endocrine pancreas in birds is characterized by two basic islet-types: i) glucagon-rich or A-islets, ii) insulin-rich or B-islets (Bonner-Weir, Weir, Gen. Comp. Endocrinol. 38 (1979) 28–37). Until now, the physiology of these peculiar islets has remained totally unknown and information concerning the isolation of avian islets is lacking. This work aimed to obtain physiologically reactive chicken islets of Langerhans.

A procedure for selectively isolating A-islets from the chicken pancreas is described. It consists of ductal injection of collagenase P (Boehringer, 4 mg/g pancreas), enzymatic digestion, atraumatic dispersion of the digesta at an appropriate time and nylon mesh filtrations. A- and B-islet types were identified through immunochemistry and radioimmunological quantification of insulin and glucagon. Islets from the cranial half of the body of the pancreas were found to be almost pure (95 %) glucagon islets (mean content = 0.45 pmol glucagon and 0.02 pmol insulin per islet). The functional capabilities of isolated islets were analysed (within 2–5 h after isolation) by comparing hormone release from islets incubated in the presence of glucose. Increasing the glucose concentration from 14 to 42 mM decreased glucagon release (0.055 versus 0.040 pmol glucagon per islet per 30 min, respectively, $P < 0.05$), thus demonstrating that the α-cells responded to glucose after isolation. Sensitivity of α-cells to insulin content of the preparation is suggested. To date, pure glucagon islets have not been described in any species other than birds. This attractive new tool is now being further developed in our laboratory to provide better understanding of α-cell physiology.