Introduction
McCune Albright syndrome (MAS) is characterised by precocious puberty, café au lait spots and polyostic fibrous dysplasia of bone where the normal interior of bone is replaced by fibro-osseous connective tissue. McCune Albright syndrome is caused by somatic activating mutations in exons 8 and 9 of GNAS1 (codons p.Arg201 and p.Gln227 respectively, NM_00516.5). All MAS patients are mosaics.

GNAS1 encodes the α subunit of the G protein Gs. The G proteins are a family of guanine nucleotide binding proteins involved in transmembrane signalling. They form heterotrimers of α, β and γ.

We also offer a full diagnostic screen of GNAS1 for Albright's Hereditary Dystrophy (AHO) and related disorders. Please refer to the AHO & Acrodysostosis service sheet.

Referrals
Patients with clinical symptoms as above.

As we offer other types of GNAS1 testing, to prevent any delay to testing, please clearly state on the referral form that McCune Albright syndrome testing is required.

Service offered
Sequencing of GNAS exon 8 using COLD PCR amplification and exon 9 by standard sequencing analysis. The exon 8 COLD PCR amplifies the c.601C>T and c.602G>A variant alleles at greater efficiency than the wild type, thereby increasing sensitivity for low level mosaicism. DNA from an affected tissue such as bone has given more successful results than DNA extracted from lymphocytes.

Target reporting time
The target reporting time is 4 weeks for MAS mutation screening. Please contact the laboratory for urgent cases.