

Smith-Lemli-Opitz syndrome (SLOS) is a variable genetic disorder that is characterized by slow growth before and after birth, small head (microcephaly), mild to moderate mental retardation and multiple birth defects including particular facial features, cleft palate, heart defects, fused second and third toes, extra fingers and toes and underdeveloped external genitals in males. The severity of SLOS varies greatly in affected individuals, even in the same family, and some have normal development and only minor birth defects. SLOS is caused by a deficiency in the enzyme 7-dehydrocholesterol reductase that results in an abnormality in cholesterol metabolism. SLOS is inherited as an autosomal recessive genetic disorder. For the US the birth prevalence of SLOS has been estimated to be approximately 1 in 20,000 to 60,000 live births. The predicted prevalence based on newborn screening for gene carriers is estimated to be 1 in 1,590 to 13,500 and this discrepancy may be due to the fact that many fetuses with SLOS are stillborn. This condition occurs equally in males and females but females are often not diagnosed because genital abnormalities are missed. SLOS occurs more often in individuals of European ancestry. The diagnosis of SLOS is based on physical findings and detection of an elevated concentration of 7-dehydrocholesterol (7-DHC) in blood serum or an elevated 7-dehydrocholesterol:cholesterol ratio. Molecular genetic testing for mutations in the DHCR7 gene is available and is mainly used for carrier testing and prenatal diagnosis.