We report four novel KIR2DL2 alleles and two novel KIR2DL3 alleles identified from an East African population using sequence-based typing. Sequencing and molecular cloning of exon 4 confirmed that the new 2DL2 alleles were identical to 2DL2*003, except for the following nucleotide differences: 2DL2*00601 had a difference at codon 16 (CGC→CCC), resulting in a coding change from arginine to proline; 2DL2*00602 also had this difference at codon 16, as well as a synonymous difference (GAT→GAC) at codon 31; 2DL2*00303 had a synonymous difference (AAA→AAG) at codon 61; and 2DL2*00304 had a synonymous difference (GGG→GGA) at codon 75. 2DL3*017 was identical to 2DL3*005 except at codon 11 (CGG→CTG, arginine→leucine) and exon 9, codons 297 (CAC→CGC, histidine→arginine) and 321 (TGA→AGA, stop codon→arginine). 2DL3*00104 was identical to KIR2DL3*001 except for a synonymous difference (GAG→GAA) at codon 54. Identification of novel killer cell immunoglobulin-like receptor (KIR) alleles is a testament to the genetic diversity in this population. 