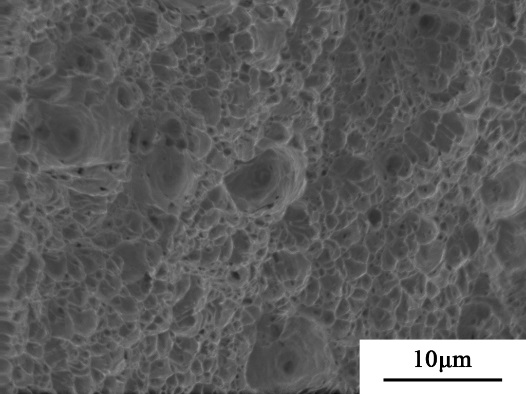
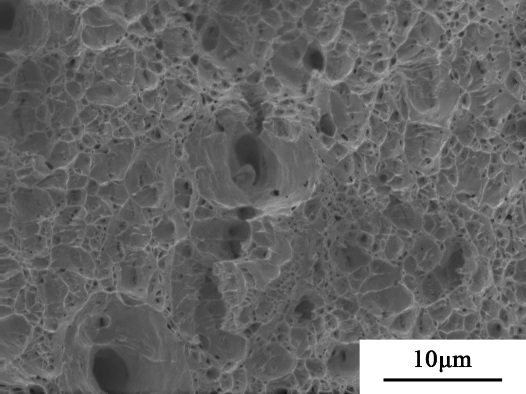


(b)



(c)



(a)

dimples

FIG. S1. SEM of the fracture surfaces of tensiled X70 pipeline steel following three directions: (a) LD, (b) TD, (c) DD.