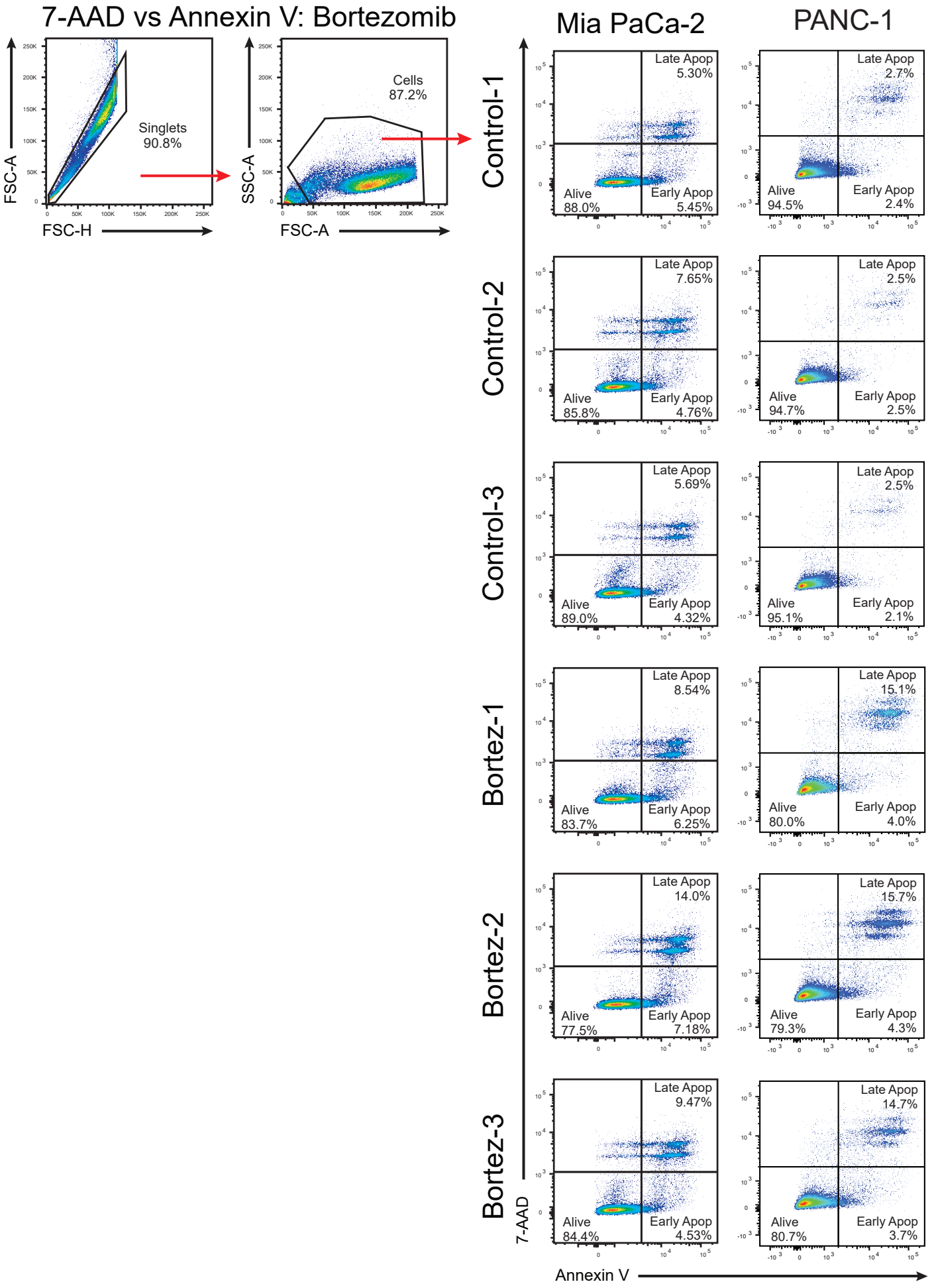Additional file 9