Double-stranded genomic DNA template Translation terminator Poly (A) addition Transcription Translation initiation codon (TAA, TAG, TGA) sequence(AATAAA) initiation codon (ATG) Intron 1 Intron 2 Exon 1 Exon 2 Exon 3 3' UTR 5' ŮTR Poly (A) Promoter region Transcription and addition (RNA pol II binding) site polyadenylation Single-stranded pre-mRNA (nuclear RNA) Branch site 3'SS 5'SS M⁷GpppAC ynyuray // y₍₇₎nagG AGgtragt D ĖSS **ESE** RNA processing Mature mRNA M⁷GpppAC (CAP) Exon 1 Exon 2 Exon 3 Export to cytoplasm and translation Protein (amino acid sequence) Folding, posttranslational modification, subcellular localization, etc. COOH