What is an accepted point mutation (PAM)? =replacement of one amino acid in a protein by another residue that has been accepted by natural selection

When does an amino acid change that is accepted by natural selection occur? =1. A gene undergoes DNA mutation that it encodes a different AA

2. Entire species adopts that change as predominant form of protein

Which point mutations are accepted in protein evolution? =Conservative replacements (like serine for threonine)

Dayhoff based it on empirically observed AA substitutions --

INvolved phylogenetic analysis

What is a phylogenetic analysis? =rather than comparing 2 AA residues direclty, compared them to inferred common ancestor of those two sequences

What did Dayhoff determine about accepted point mutations? =Looked at frequency with which any Determined which substitutions are unlikely vs. Inclotesale.co.U Which PAM matrix is appropriate

Which matrix vields divergent proteins? =PAM70

Why do lower PAM matrices (e.g. PAM10 and PAM60) produce lower bit scores? = Low AA identity

Mismatches assigned large negative scores

What does BLOSUM stand for? = blocks substitution matrix

What is the BLOCKS database? = consists of over 500 gorups of local multiple alignments (blocks) of distantly related protein sequences

The BLOSUM scoring scheme employs what? =log-odds ratio using base 2 logarithm

What is the default scoring matrix for BLAST protein search programs at NCBI? =BLOSUM62

What does BLOSUM62 do? = Merges all proteins in an alignment that has 62% amino acid identity or greater into one sequence

SO: It is useful to use when comparing sequences with LESS than 62% identity

Are substitution frequencies for the BLOSUM62 matrix are weighted (more/less) heavily by blocks of protein sequences having less than 62% identity =MORE

What are the other two BLOSUM matrices commonly used? =BLOSUM50 and BLOSUM90