Ames Test Analysis –
Examples of available DNA Sequences obtained by students
H2O = spontaneous revertant (control exposed to water only)
NaN3 = exposure to sodium azide, known mutagen that tends to induce missense
4NOP = known mutagen that tends to induce indels

TA1535

WT: GAT CTC GGT = D L G

His-: GAT CCC GGT = D P G

H2O-3: GAT ACC GGT = D T G

H2O-4: GAT TCC GGT = D S G

NaN3-1: same as WT

TA1538

WT: (2 codons, in frame are in bold)
GGAGGCGGTAGAACGTCAACTGGCGGAACTGCCGCGCGCGGACACC**GCCCGG**CAG 900

HisDTA1538mutant (-1 FS)
GGAGGCGGTAGAACGTCAACTGGCGGAACTGCCGCGCGCGGACACC**GCC-GG**CAG 899

4NOP-1 -4 bases 9 bases upstream of his- deletion, +2 bases and – the original base from his - , to a net loss of 3 relative to WT, creates 3 new amino acids and loss of 1 amino.

H2O-1: 21 bp deletion compared to WT (20 bp compared to his-)
In-frame deletion of 7 amino acids starting 5 amino acids upstream of original his- deletion.

H20-2: 3 bp deletion compared to WT (2 bp compared to his-)
TARQA becomes TAEA, so 1 amino acid deleted and 1 changed.

H2O-4: Add 1 bp earlier in sequence compared to his-
5 amino acids different, right before original deletion
PRADTARQ ALS becomes PRADTAEALS

H2O-5 3 bp deletion compared to WT (2 bp deletion compared to his-
PRADTARQ becomes PRGHRRQ – so loss of 1 amino acid and change of 3.

Bio 260 Genetics
E. De Stasio **Ames Test Mini-Manuscript Grading Sheet**

Abstract
Succinct description of results /2

Introduction
Describes the assay system and the research goals or hypotheses /5

Methods
Describes the materials you tested and how you collected data /2

Results
Reversion Frequency calculation, description, quantitative comparisons /8

Molecular Data: DNA alignments, affects on protein /10

Figures/Tables/Legends /8

Discussion
Explains & Interprets reversion frequencies, use of controls /4

Explains mutation types in different *Salmonella* strains; by different mutagens /6

Writing
Organization, mechanics, clarity /5

Acknowledgements