Component

## pH 7.5

Fluorescence

# WT Vio

Component

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| 1 | 2 | 3 |

## pH 5.0

Fluorescence

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| 1 | 2 | 3 |

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.71 | 2.45 | 0.71 | 2.45 | 0.71 | 2.45 |
| Intensity | 0.10 | 0.10 | 0.080 | 0.32 | 0.18 | 0.13 |

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.68 | 2.43 | 0.68 | 2.43 | 0.68 | 2.43 |
| Intensity | 0.083 | 0.049 | 0.074 | 0.21 | 0.0013 | 0.046 |

Transition rates Transition rates

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.25 23 | | 0.14 | 850 | 0.045 | 0.0017 |
| 2 | 15 0.25 | | 230 | 0.23 | < 0.001 | 0.039 |
| Population | 0.61 | 0.39 | 0.79 | 0.21 | 0.94 | 0.060 |
| Free energy  diﬀerence | 90.0 | | 278 | | 587 | |

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.27 23 | | 0.22 | 780 | 0.49 | 0.0022 |
| 2 | 5.1 0.32 | | 250 | 0.28 | < 0.001 | 0.10 |
| Population | 0.83 | 0.17 | 0.72 | 0.28 | 0.95 | 0.050 |
| Free energy  diﬀerence | 314 | | 238 | | 585 | |

Component

## pH 7.5

Fluorescence

# Stop Vio

Component

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| 1 | 2 | 3 |

## pH 5.0

Fluorescence

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.49 | 2.27 | 0.49 | 2.27 | 0.49 | 2.27 |
| Intensity | 0.052 | 0.11 | 0.098 | 0.47 | 0.14 | 0.085 |

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.53 | 2.20 | 0.53 | 2.45 | 0.53 | 2.20 |
| Intensity | 0.12 | 0.096 | 0.048 | 0.33 | 0.12 | 0.071 |

Transition rates Transition rates

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.28 | 6.0 | 0.17 | 1500 | 0.047 | 0.0014 |
| 2 | 13 | 0.26 | 320 | 0.25 | < 0.001 | 0.027 |
| Population | 0.32 | 0.68 | 0.82 | 0.18 | 0.96 | 0.040 |
| Free energy  diﬀerence | -156 | | 315 | | 695 | |

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.23 | 5.2 | 0.12 | 870 | 0.10 | 0.0010 |
| 2 | 9.7 | 0.20 | 280 | 0.16 | < 0.001 | 0.069 |
| Population | 0.35 | 0.65 | 0.75 | 0.25 | 0.95 | 0.050 |
| Free energy  diﬀerence | -129 | | 233 | | 649 | |

Component

## pH 7.5

Fluorescence

# WT Zea

Component

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| 1 | 2 | 3 |

## pH 5.0

Fluorescence

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.47 | 2.35 | 0.47 | 2.35 | 0.47 | 2.35 |
| Intensity | 0.11 | 0.022 | 0.0076 | 1.0 | 0.091 | 0.23 |

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.44 | 1.97 | 0.44 | 1.97 | 0.44 | 1.97 |
| Intensity | 0.0073 | 0.13 | 0.060 | 0.41 | 0.046 | 0.020 |

Transition rates Transition rates

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.56 18 | | 0.038 730 | | 0.021 | < 0.001 |
| 2 | 41 0.56 | | 12 0.038 | | < 0.001 | 0.021 |
| Population | 0.31 | 0.69 | 0.98 | 0.020 | 0.42 | 0.58 |
| Free energy  diﬀerence | -166 | | 857 | | -66 | |

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 1.2 | 130 | 0.14 | 860 | 0.11 | 0.0031 |
| 2 | 25 | 0.33 | 53 | 0.23 | < 0.001 | 0.11 |
| Population | 0.97 | 0.030 | 0.84 | 0.16 | 0.94 | 0.060 |
| Free energy  diﬀerence | 342 | | 581 | | 712 | |

Component

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Fluorescence

# Stop Zea

Component

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## pH 5.0

Fluorescence

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| 1 | 2 | 3 |

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.46 | 2.17 | 0.46 | 2.17 | 0.46 | 2.17 |
| Intensity | 0.051 | 0.066 | 0.078 | 0.28 | 0.11 | 0.037 |

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| Lifetime state | 1 | 2 | 1 | 2 | 1 | 2 |
| Lifetime | 0.46 | 1.90 | 0.46 | 1.90 | 0.46 | 1.90 |
| Intensity | 0.060 | 0.11 | 0.043 | 0.14 | 0.11 | 0.083 |

Transition rates Transition rates

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.29 | 6.7 | 0.15 | 1900 | 0.068 | 0.0017 |
| 2 | 9.9 | 0.29 | 270 | 0.15 | < 0.001 | 0.066 |
| Population | 0.40 | 0.60 | 0.87 | 0.13 | 0.97 | 0.030 |
| Free energy  diﬀerence | -82 | | 400 | | 768 | |

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| --- | --- | --- | --- | --- | --- | --- |
| Lifetime state Final \ Initial | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | < 0.001 | 0.56 | 1.7 | 470 | 0.050 | 0.0011 |
| 2 | 0.97 | 0.25 | 67 | 1.2 | < 0.001 | 0.041 |
| Population | 0.37 | 0.63 | 0.88 | 0.12 | 0.90 | 0.010 |
| Free energy  diﬀerence | -114 | | 406 | | 466 | |