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#### Category I ORF

| Gene ID   | Description   | Position |
|-----------|---------------|----------|
| YAL059W   | ECM1          | 3        |
| YBR073W   | RDH54         | 5        |
| YBR245C   | ISW1          | 6        |
| YCL033C   | MXR2          | 7        |
| YCR038C   | BUD5          | 8        |
| YDR221W   | GTB1          | 9        |
| YDR291W   | HRQ1          | 10       |
| YDR305C   | HNT2          | 11       |
| YDR324C   | UTP4          | 12       |
| YDR488C   | PAC11         | 13       |
| YDR512C   | EM1           | 14       |
| YER077C   | MRX1          | 15       |
| YGL212W   | VAM7          | 16       |
| YGR174C   | CBP4          | 17       |
| YGR238C   | KEL2          | 18       |
| YJL023C   | PET130        | 19       |
| YJL060W   | BNA3          | 20       |
| YJR012C   |               | 21       |
| YJR078W   | BNA2          | 22       |
| YJR126C   | VPS70         | 23       |
| YJR136C   | TT12          | 24       |
| YKL021C   | MAK11         | 25       |
| YKR056W   | TRM2          | 26       |
| YLR039C   | RIC1          | 27       |
| YLR116W   | MSL5          | 28       |
| YLR403W   | SFP1          | 29       |
| YLR408C   | BL5           | 30       |
| YML049C   | RSE1          | 31       |
| YMR019W   | STB4          | 32       |

#### Category II ORF

| Gene ID   | Description   | Position |
|-----------|---------------|----------|
| YAR031W   | PRM9          | 47       |
| YBL055C   |               | 48       |
| YBR044C   | TCM62         | 49       |
| YBR111C   | YSA1          | 50       |
| YBR250W   | SPO23         | 51       |
| YDL049C   | KNH1          | 52       |
| YDR109C   |               | 55       |
| YDL107W   | MSS2          | 53       |
| YDL108W   | KIN28         | 54       |
| YDR120C   | TRM1          | 56       |
| YDR125C   | ECM18         | 57       |
| YDR423C   | CAD1          | 58       |
| YDR499W   | LCD1          | 59       |
| YEL066W   | HPA3          | 60       |
| YER020W   | GPA2          | 61       |
| YFR006W   |               | 62       |
| YFR038W   | IRC5          | 63       |

**Supplemental Data S3.** Histograms of peptide observations in categories I, II, and III ORF region

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*Supplemental Data S3*
| GenBank ID | Chromosome |
|------------|-------------|
| YLR063W (BMT6) | 95 | YDR336W (MRX8) | 126 |
| YLR119W (SRN2) | 96 | YER033C (ZRG8) | 127 |
| YLR165C (PUS5) | 97 | YFL024C (EPL1) | 128 |
| YLR218C (COA4) | 98 | YGR015C | 129 |
| YLR266C (PDR8) | 99 | YGR140W (CBF2) | 130 |
| YLR384C (IKI3) | 100 | YHR036W (BRL1) | 131 |
| YLR405W (DUS4) | 101 | YHR091C (MSR1) | 132 |
| YLR417W (VPS36) | 102 | YIR032C (DAL3) | 133 |
| YML021C (UNG1) | 103 | YJL013C (MAD3) | 134 |
| YML099C (ARG81) | 104 | YJL058C (BIT61) | 135 |
| YML126C (ERG13) | 105 | YJL088W (ARG3) | 136 |
| YMR064W (AEP1) | 106 | YJR039W | 137 |
| YMR172W (HOT1) | 107 | YKL005C (BYE1) | 138 |
| YNL045W (LAP2) | 108 | YKR034W (DAL80) | 139 |
| YNL046W | 109 | YLR143W (DPH6) | 140 |
| YNL195C | 110 | YLR176C (RFX1) | 141 |
| YNL247W | 111 | YLR247C (IRC20) | 142 |
| YNL260C (LTO1) | 112 | YLR390W (ECM19) | 143 |
| YOL059W (GPD2) | 113 | YLR411W (CTR3) | 144 |
| YOR241W (MET7) | 114 | YML046W (PRP39) | 145 |
| YOR289W | 115 | YMR056C (AAC1) | 146 |
| YOR361C (PRT1) | 116 | YMR111C | 147 |
| YPL108W | 117 | YMR265C | 148 |
| YPL192C (PRM3) | 118 | YNL014W (HEF3) | 149 |
| YPR007C (REC8) | 119 | YNL125C (ESBP6) | 150 |
| YPR196W | 120 | YNL277W (MET2) | 151 |
| **Category III ORF** | **121** | YNL286W (CUS2) | 152 |
| YBL010C | 121 | YOL068C (HST1) | 153 |
| YBR152W (SPP381) | 122 | YOL159C (CSS3) | 154 |
| YDR014W-A (HED1) | 123 | YOR011W (AUS1) | 155 |
| YDR017C (KCS1) | 124 | YOR032C (HMS1) | 156 |
| YDR283C (GCN2) | 125 | YOR208W (PTP2) | 157 |

Notes: In each histogram, the region between two vertical lines in orange indicates the potentially misannotated region.
YCR038C (BUD5)

Number of observations

Positions of amino acids (SGD annotation)

Supplemental Data S3
Positions of amino acids (SGD annotation)

Number of observations

YDR221W (GTB1)

Supplemental Data S3
YDR305C (HNT2)

Supplemental Data S3
Positions of amino acids (SGD annotation)

Number of observations

YDR324C (UTP4)
Positions of amino acids (SGD annotation)

Number of observations

YGL212W (VAM7)

Supplemental Data S3
YKL021C (MAK11)

Supplemental Data S3
Positions of amino acids (SGD annotation)

Number of observations

YKR056W (TRM2)

Supplemental Data S3
Positions of amino acids (SGD annotation)

Number of observations
Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)

Number of observations

YBR111C (YSA1)

Supplemental Data S3
YBR250W (SPO23)

Number of observations

Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)

Number of observations

YGL057C (GEP7)

Supplemental Data S3
YGL247W (BRR6)

Supplemental Data S3

Positions of amino acids (SGD annotation)

Number of observations

0 50 100 150 200

0 5 10 15
Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)

Number of observations

YIL156W (UBP7)
YKL188C (PXA2)

Number of observations

Supplemental Data S3
YLR165C (PUS5)

Number of observations

Positions of amino acids (SGD annotation)

Supplemental Data S3
Positions of amino acids (SGD annotation)

Number of observations

YLR417W (VPS36)

Supplemental Data S3
YPR007C (REC8)

Positions of amino acids (SGD annotation)

Number of observations

Supplemental Data S3
YDR014W−A (HED1)

Number of observations

Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)

Number of observations

YDR336W (MRX8)
Positions of amino acids (SGD annotation)

Number of observations

YGR015C

Supplemental Data S3
YHR091C (MSR1)

Number of observations

Positions of amino acids (SGD annotation)

Supplemental Data S3
YJL058C (BIT61)

Supplemental Data S3

Number of observations vs. Positions of amino acids (SGD annotation)
YLR247C (IRC20)

Number of observations

Positions of amino acids (SGD annotation)

Supplemental Data S3
Positions of amino acids (SGD annotation)
Number of observations vs. Positions of amino acids (SGD annotation) for YMR056C (AAC1) from Supplemental Data S3.
YNL286W (CUS2)

Number of observations

Positions of amino acids (SGD annotation)
Positions of amino acids (SGD annotation)

Number of observations

YOR011W (AUS1)

Supplemental Data S3
Positions of amino acids (SGD annotation)
