

Figure S1

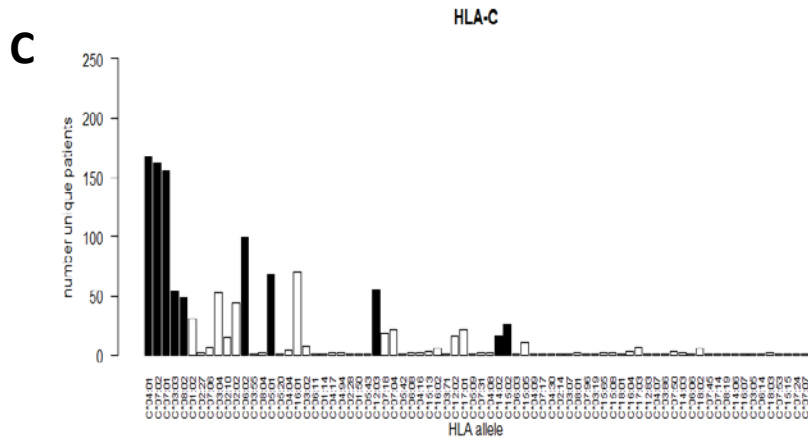
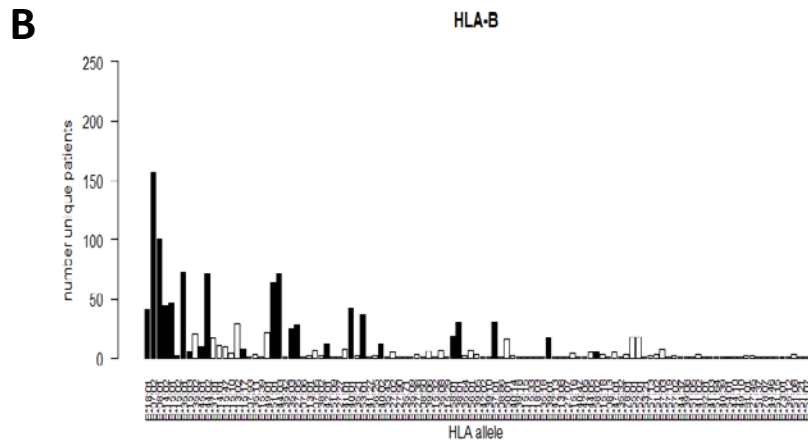
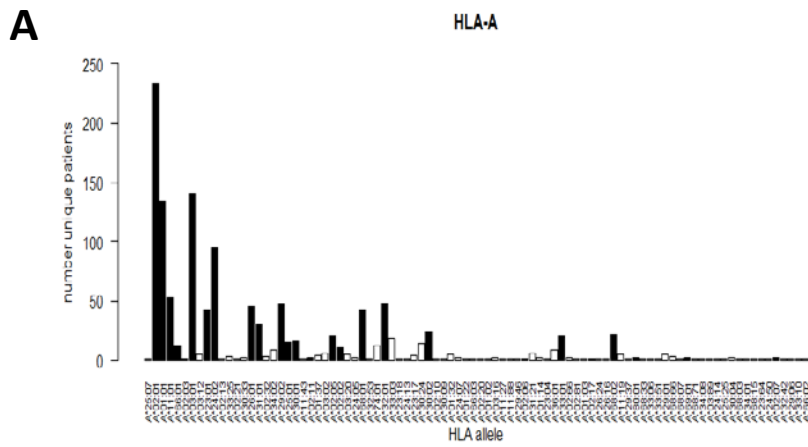
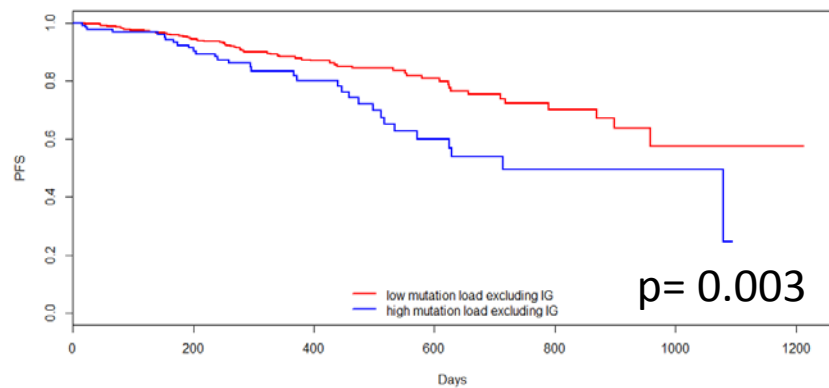
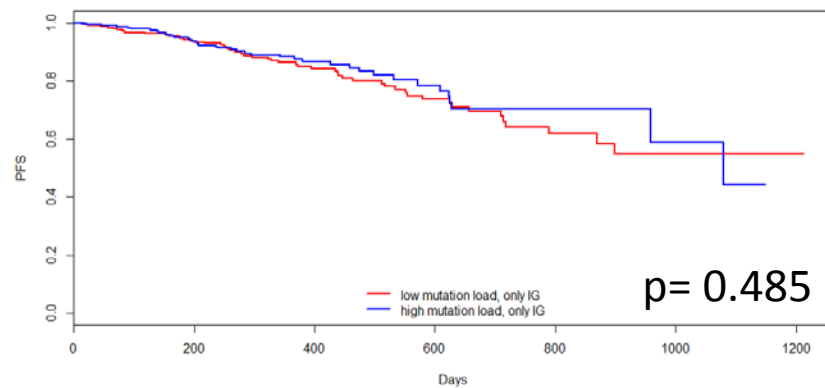


Figure S2

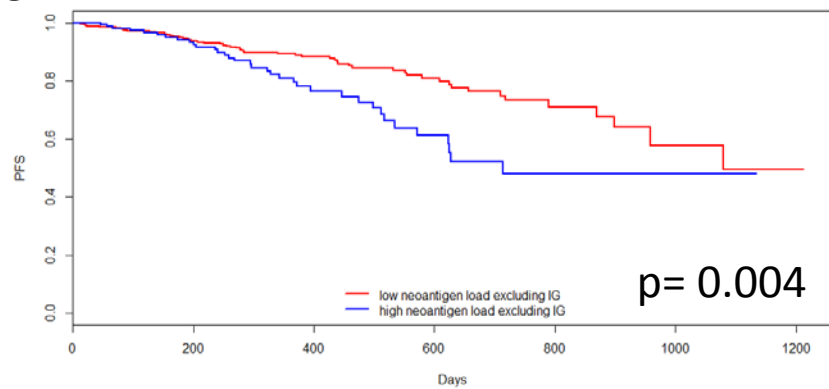
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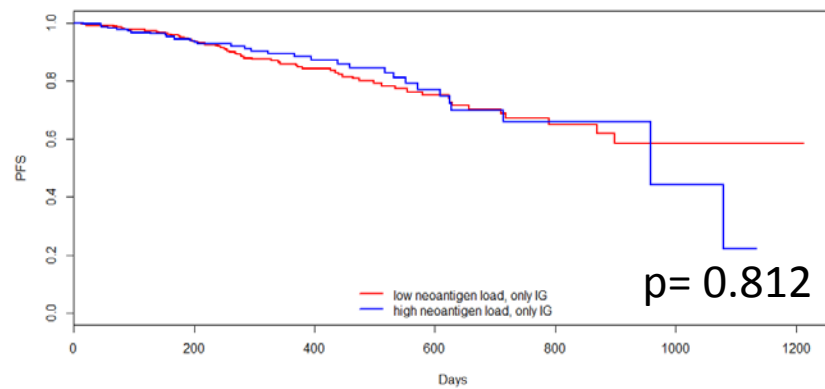
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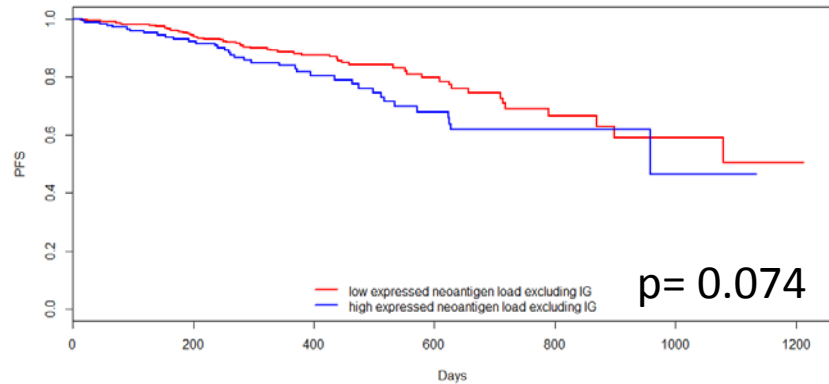
C



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F

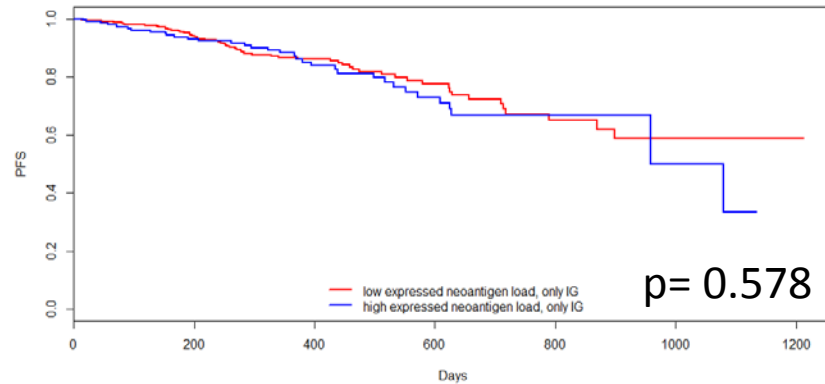


Figure S3

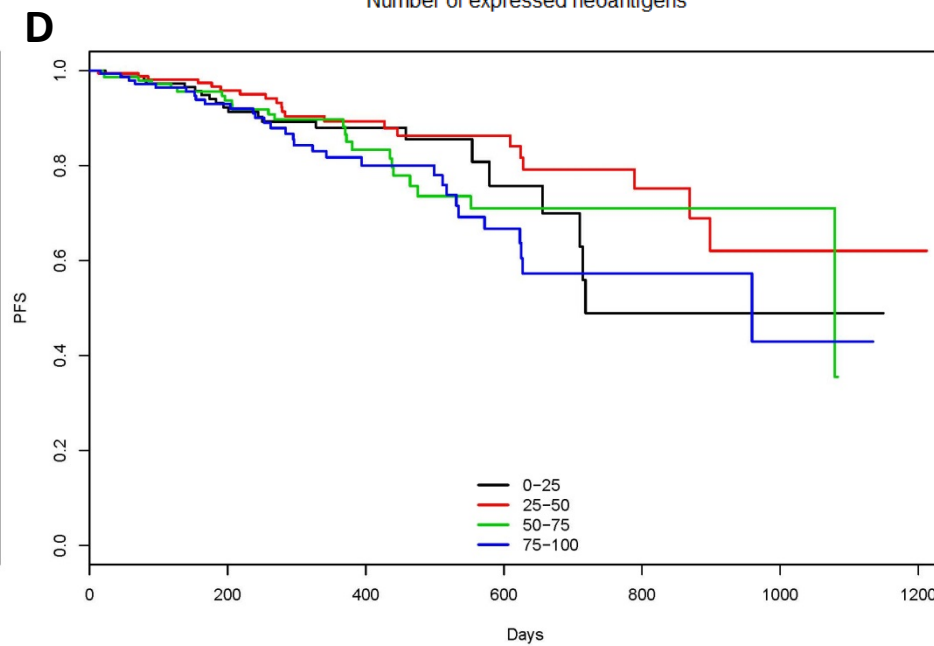
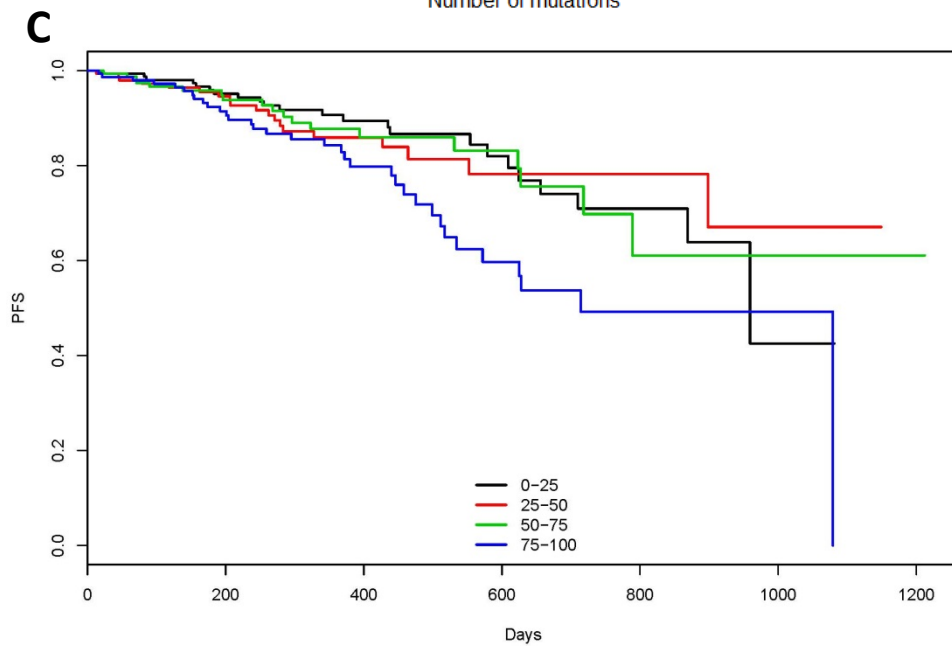
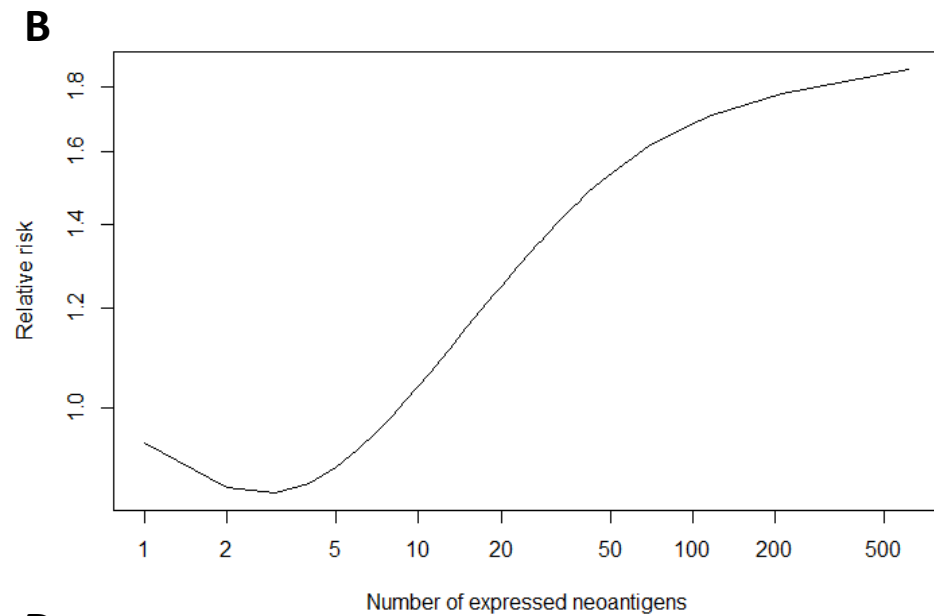
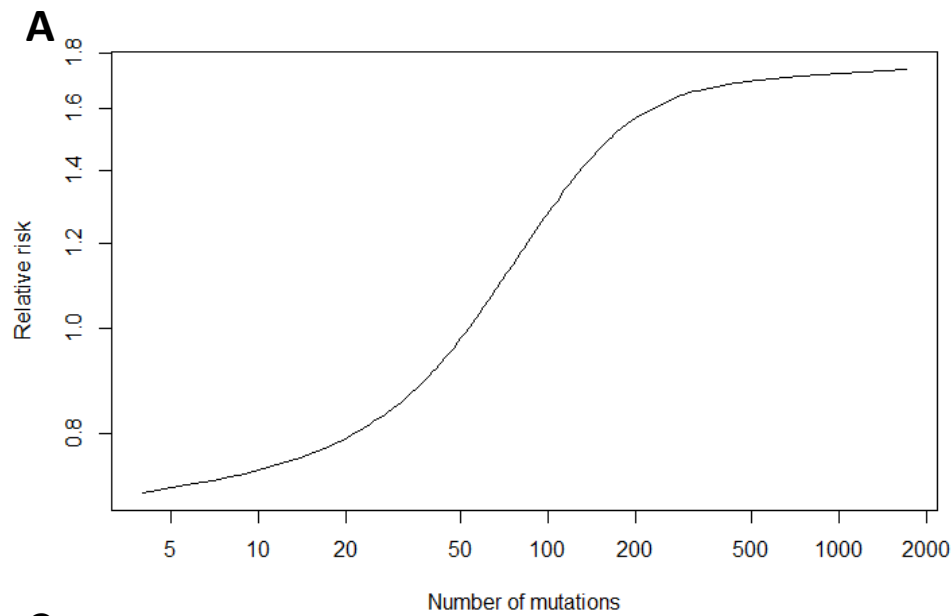
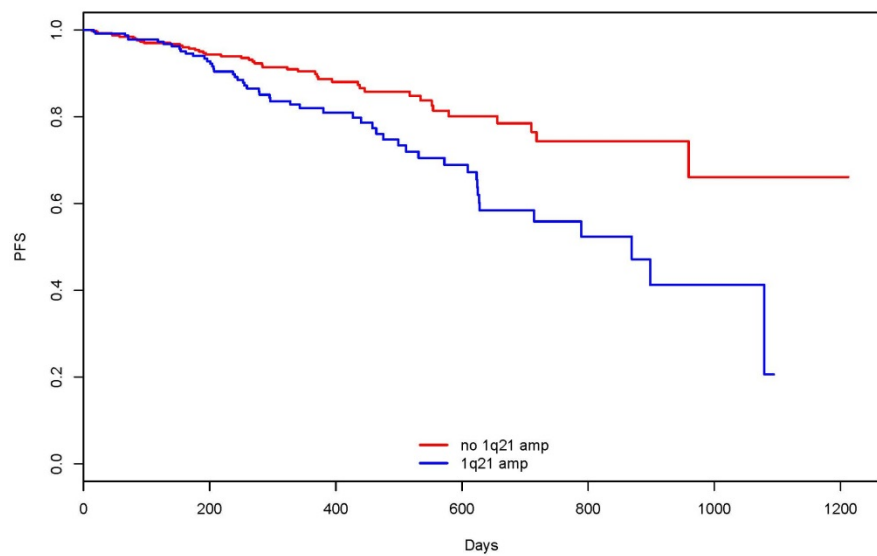
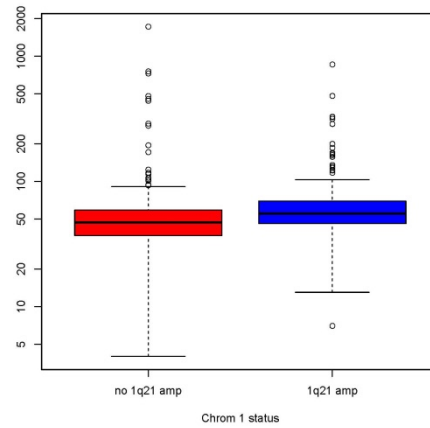


Figure S4

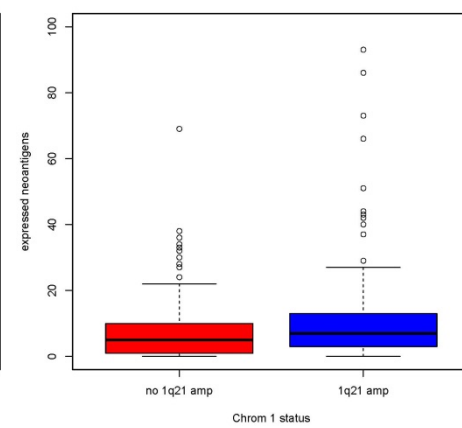
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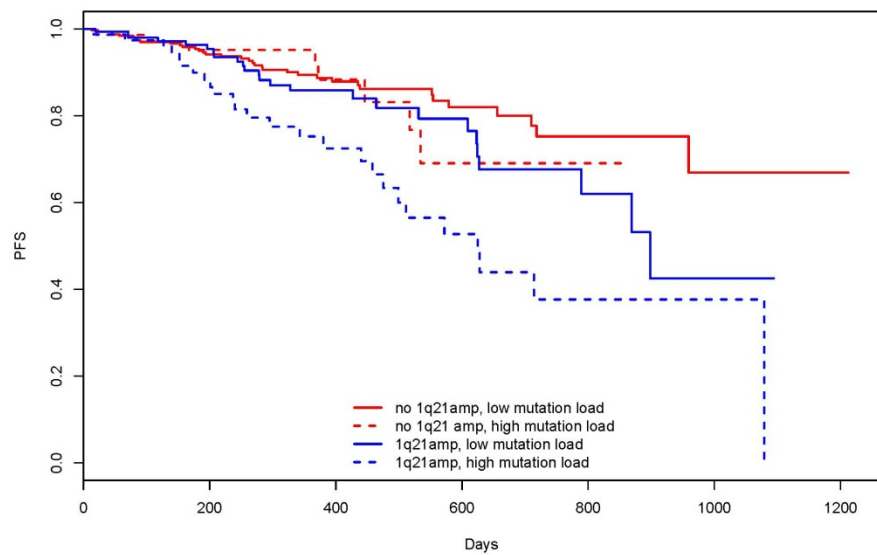
B



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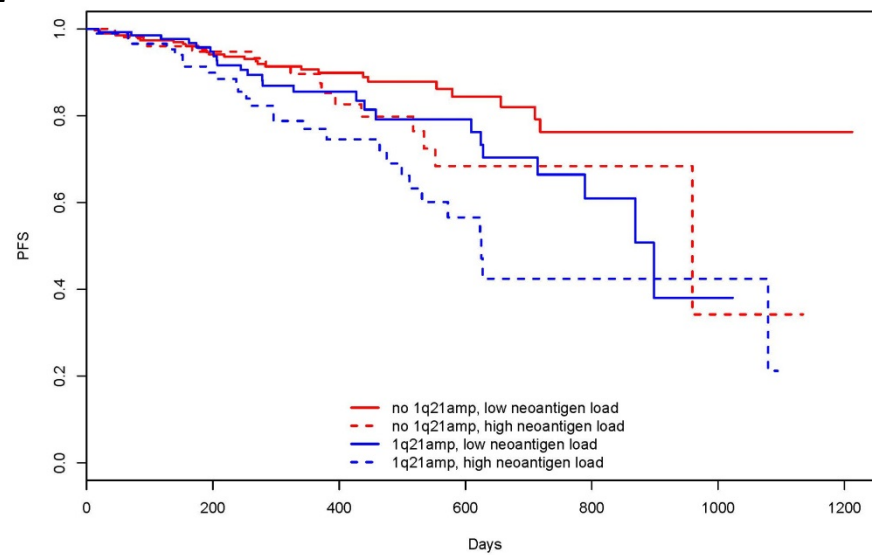
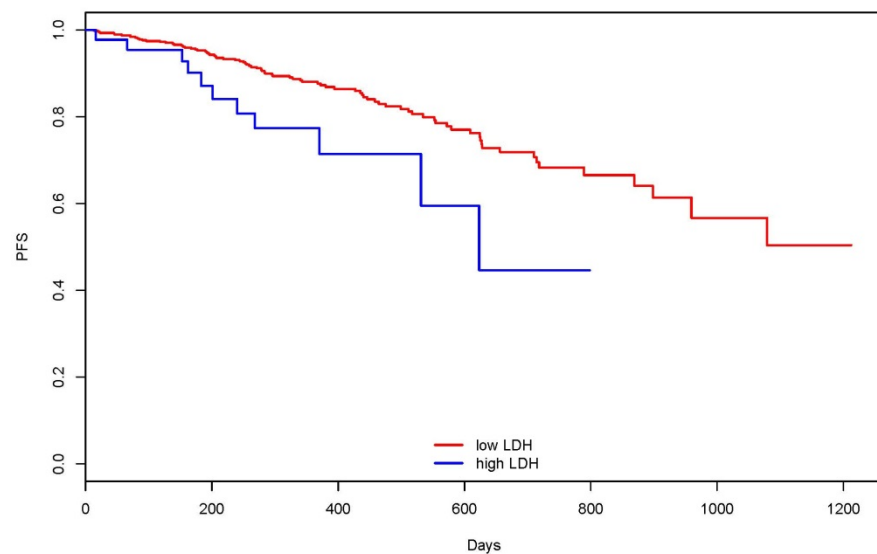
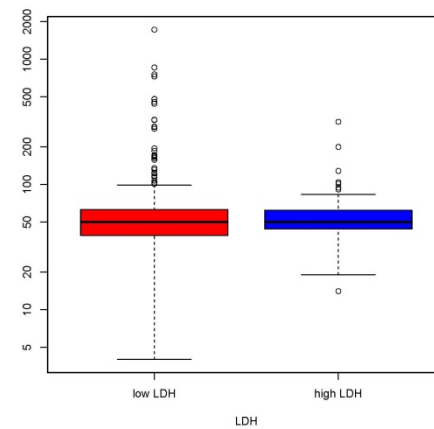


Figure S5

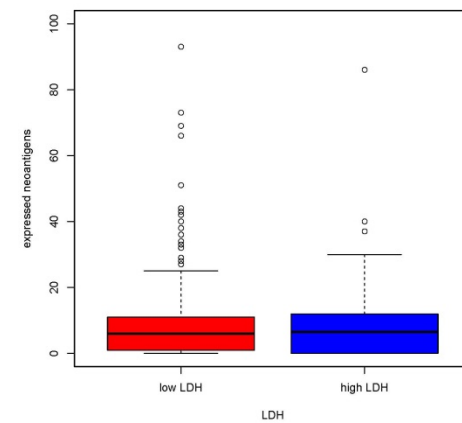
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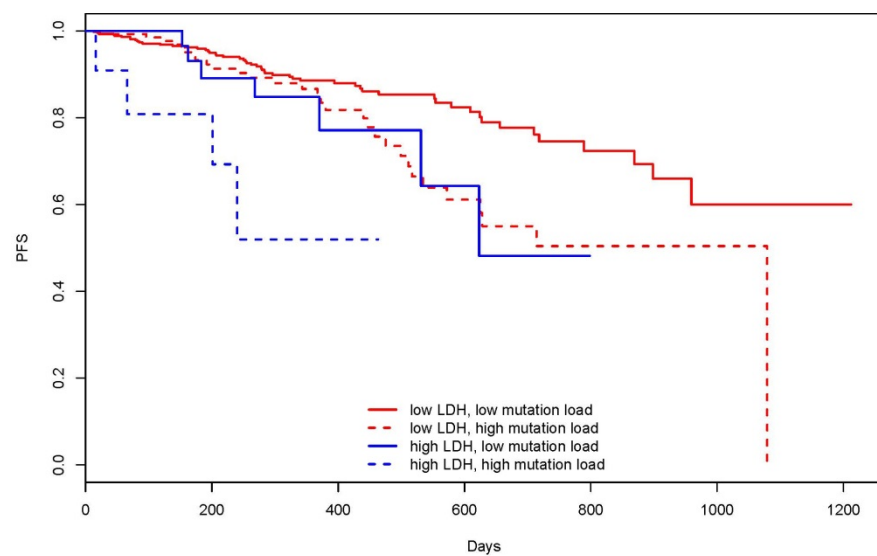
B



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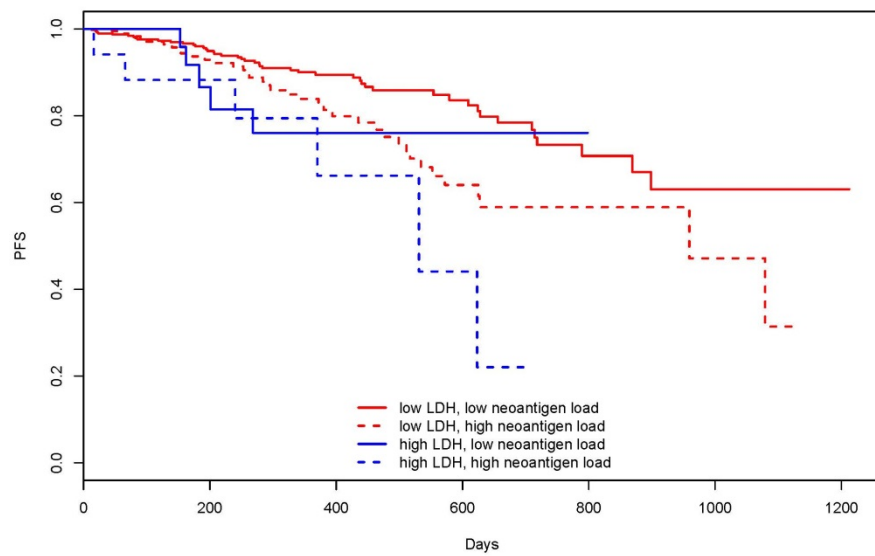
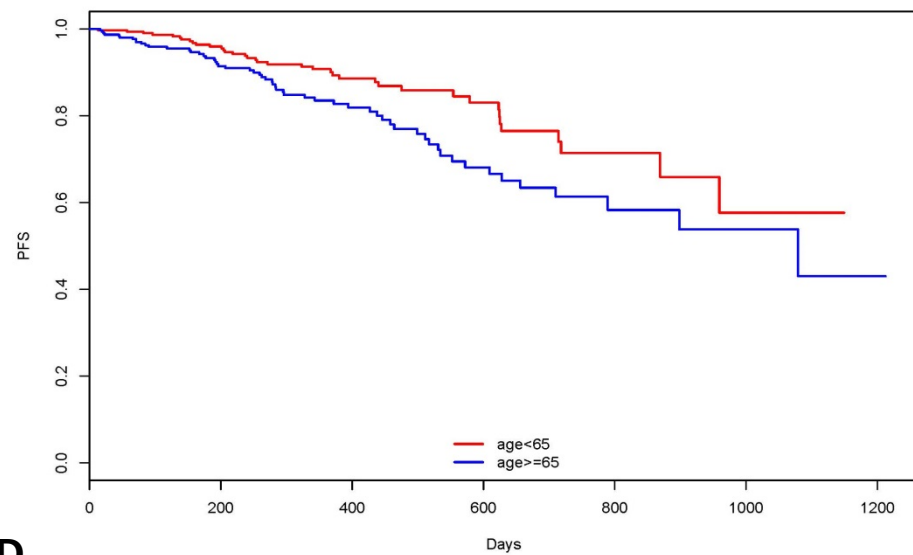
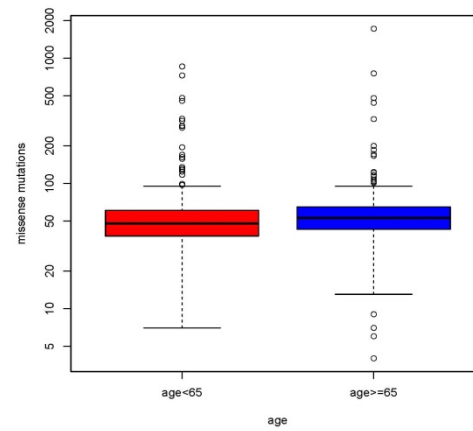


Figure S6

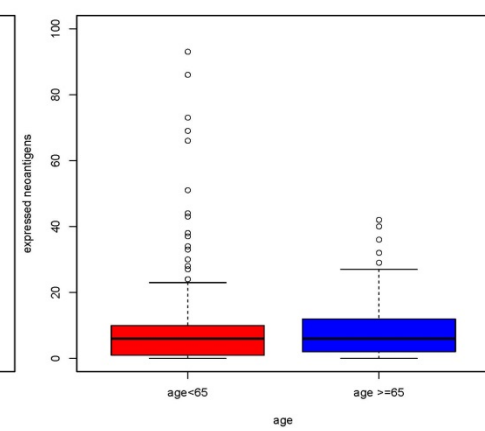
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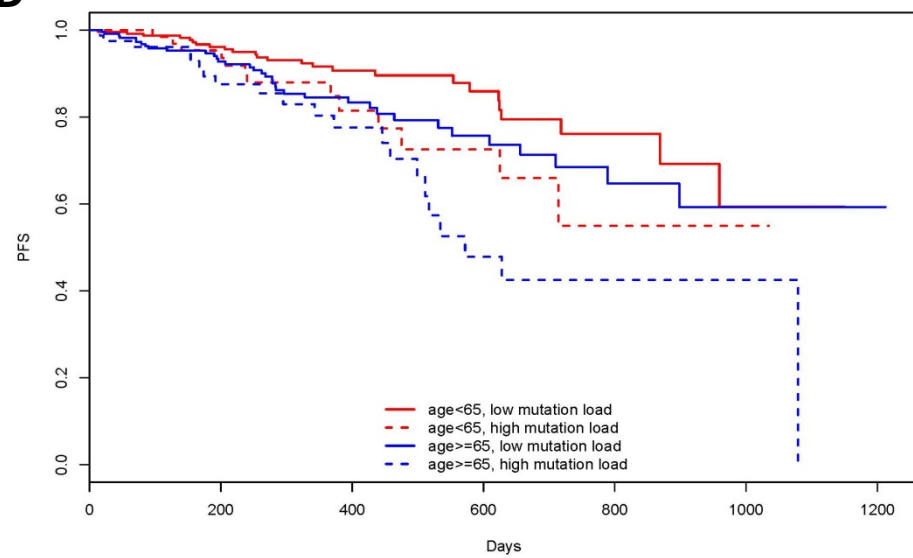
B



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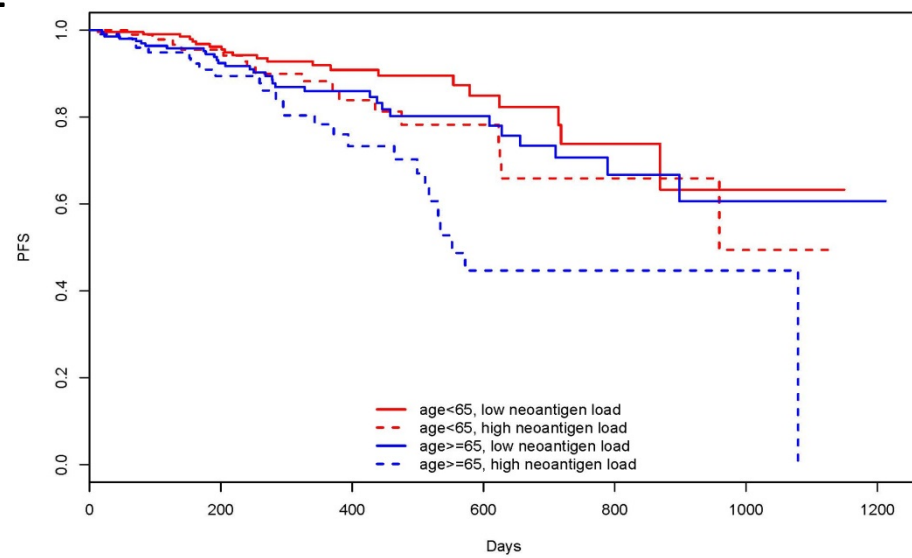


Table S1

| Threshold | 2 year survival rate | | p-value |
|---|-----------------------------|-------------|----------------|
| Missense Mutations | low | high | |
| Missense mutations | 0.726 | 0.493 | 0.00228 |
| missese mutations excluding IG | 0.723 | 0.494 | 0.00279 |
| Neoantigens | | | |
| neoantigen | 0.709 | 0.557 | 0.0637 |
| Expressed neoantigen | 0.729 | 0.555 | 0.00297 |
| neoantigen excluding IG | 0.733 | 0.481 | 0.00381 |
| Expressed neoantigens excluding IG | 0.691 | 0.618 | 0.0737 |
| Missense mutations + Neoantigens | | | |
| Missense + expressed Nag | 0.703 | 0.488 | 0.000505 |
| Missense + Nag excluding IG | 0.715 | 0.436 | 0.00317 |

Table S2

| Threshold | 2 year survival rate | | | | p-value | | |
|----------------------|-----------------------------|---------------------|---------------------|----------------------|----------------------|-----------------------|-----------|
| Disease Stage | Stage I | | Stage II | | Stage III | | |
| Stage | 0.783 | | 0.669 | | 0.544 | 1.28E-05 | |
| | Stage I/ low | Stage I/high | Stage II/low | Stage II/high | Stage III/low | Stage III/high | |
| Stage+Missense | 0.883 | 0.452 | 0.728 | 0.535 | 0.559 | 0.517 | 6.61E-06 |
| | Stage I/ low | Stage I/high | Stage II/low | Stage II/high | Stage III/low | Stage III/high | |
| Stage+expressed Nag | 0.855 | 0.661 | 0.709 | 0.604 | 0.64 | 0.403 | 2.56e-.06 |

Table S3

| Threshold | 2 year survival rate | | | | p-value |
|----------------------------------|-----------------------------|----------------------|----------------------|-----------------------|----------------|
| Cytogenetic Abnormalities | low risk | | high risk | | |
| risk | 0.690 | | 0.619 | | 0.522 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| risk + missense mutations | 0.755 | 0.315 | 0.634 | 0.598 | 0.00528 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| risk + expressed neoantigens | 0.731 | 0.583 | 0.723 | 0.532 | 0.0301 |

Table S4

| Mutational Load Variable | Prognostic Risk Factor | Mutational Load Mean (with risk factor) | | Mutational Load Mean (without risk factor) | Significant difference p-value |
|---------------------------------|-------------------------------|--|--|---|---------------------------------------|
| Missense Mutations | Cytogenetic high risk | 82.47024 | | 57.60887 | 0.00539 |
| | 1q21amplificaitron | 69.20968 | | 60.73317 | 0.2121 |
| | Elevated LDH | 62.76000 | | 63.99186 | 0.8732 |
| | High Age | 66.10123 | | 61.77515 | 0.5515 |
| Expressed Neoantigens | Cytogenetic high risk | 13.178571 | | 8.114919 | 0.01777 |
| | 1q21amplificaitron | 10.53226 | | 8.71875 | 0.3202 |
| | Elevated LDH | 9.780000 | | 9.364821 | 0.8608 |
| | High Age | 9.969325 | | 8.843195 | 0.5954 |
| | | Mutational Load Mean (stage I) | Mutational Load Mean (stage II) | Mutational Load Mean (stage III) | |
| Missense Mutations | ISS stage | 67.60563 | 60.48899 | 64.69192 | 0.743 |
| Expressed Neoantigens | ISS stage | 10.88732 | 8.140969 | 9.292929 | 0.544 |

Table S5

| Threshold | 2 year survival rate | | | | p-value |
|--|-------------------------------------|----------------------|---------------------------------------|-----------------------|----------|
| Chromosome 1 Status | low risk (no amplification) | | high risk (1q21 amplification) | | |
| 1q amplification | 0.743 | | 0.559 | | 0.000702 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| 1q amplification + missense mutations | 0.752 | 0.690 | 0.677 | 0.377 | 9.86e-05 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| 1q amplification + expressed neoantigens | 0.762 | 0.684 | 0.664 | 0.424 | 0.000321 |

Table S6

| Threshold | 2 year survival rate | | | | p-value |
|-----------------------------|----------------------------------|----------------------|-----------------------------------|-----------------------|----------|
| LDH | low risk (LDH<300IU/L) | | high risk (LDH>300IU/L) | | |
| Serum LDH level | 0.683 | | 0.446 | | 0.0105 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| LDH + missense mutations | 0.745 | 0.504 | 0.482 | 0.5191 | 7.92e-05 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| LDH + expressed neoantigens | 0.733 | 0.589 | 0.760 | 0.221 | 0.00151 |

Table S7

| Threshold | 2 year survival rate | | | | p-value |
|-----------------------------|-----------------------------|----------------------|----------------------------|-----------------------|----------|
| Age | low risk (age<65) | | high risk (age ≥65) | | |
| Age | 0.714 | | 0.613 | | 0.0115 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| Age + missense mutations | 0.761 | 0.549 | 0.685 | 0.425 | 0.00129 |
| | low risk/low | low risk/high | high risk/low | high risk/high | |
| Age + expressed neoantigens | 0.738 | 0.659 | 0.707 | 0.447 | 0.000435 |

Table S8

