Supplementary material

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Supplementary material. Detailed mathematical explanations of binomial distribution:

$$\Pr(M\ mutant\ gp16\ in\ the\ motor) = \binom{\mathrm{Z}}{M} P^{Z-M} q^{M} = \left(\frac{Z!}{M!(Z-M)!} \right) P^{Z-M} q^{M}$$

(Equation A)

If K = 1, then the motor activity will be $\binom{6}{0} p^6$; if K = 2, then the motor activity will be $\binom{6}{0} p^6 + \binom{6}{1} p^5 q^1$; if K = 3, then the motor activity will be $\binom{6}{0} p^6 + \binom{6}{1} p^5 q^1 + \binom{6}{2} p^4 q^2$; if K = 4, then the motor activity will be $\binom{6}{0} p^6 + \binom{6}{1} p^5 q^1 + \binom{6}{2} p^4 q^2 + \binom{6}{3} p^3 q^3$; if K = 5, then the motor activity will be $\binom{6}{0} p^6 + \binom{6}{1} p^5 q^1 + \binom{6}{2} p^4 q^2 + \binom{6}{3} p^3 q^3 + \binom{6}{4} p^2 q^4$; and if K = 6, then the motor activity will be $\binom{6}{0} p^6 + \binom{6}{1} p^5 q^1 + \binom{6}{2} p^4 q^2 + \binom{6}{3} p^3 q^3 + \binom{6}{4} p^2 q^4 + \binom{6}{5} p^1 q^5$.