

| Variables X<br>(Colonnes)                   |     | Facteurs Y (lignes)<br>Variable de réponse |   |   |  |   |
|---|-----|--|---|---|--|---|
|   |     | Qualitative                                |   |   | Quantitative   |   |
|   |     | Nominale                                   |   | Ordinale *<br>(#quantitative non normale)                   |  |   |
|   |     | 2 groupes                                  | > 2 groupes   |   |  |   |
| Qualitative<br>(groupes)<br>Facteur d'étude | 2   | Indépendant                                | > 5 : Chi2<br>< 5 : Test exact de Fisher              | > 5 : Chi2  | U de Mann-Whitney.   | > 30 ou normale : t de Student<br>* < 30 : Test de Mann-Whitney-Wilcoxon            |
|   |     | Appariée                                   | > 5 : Chi2 de Mac Nemar<br>< 5 : Test exact de Fisher | Q de Cochran.   | Test de rangs signés de Wilcoxon                             | > 30 ou normale : t de Student apparié<br>* < 30 : Test de rangs signés de Wilcoxon |
|   | > 2 | Indépendant                                | Chi2  |   | Test de Kruskal-Wallis                                       | ANOVA (Analyse de variance)<br>*Test de Kruskal-Wallis                              |
|   |     | Apparié                                    | Q de Cochran.   |   | Test de Friedman   |   |
| Quantitative                                |     | Régression <b>logistique</b>               | R. logistique <b>multinomiale</b>                     | Test de <b>corrél</b> ation de Spearman<br>(Tau de Kendall) | Test de corrélation de Pearson<br>Régression <b>linéaire</b> |   |
| Censurée<br>(time to event)                 |     | Cox regression (hasard ratio =Exp B)       |   |   |  | kaplan meier (logrank test)   |



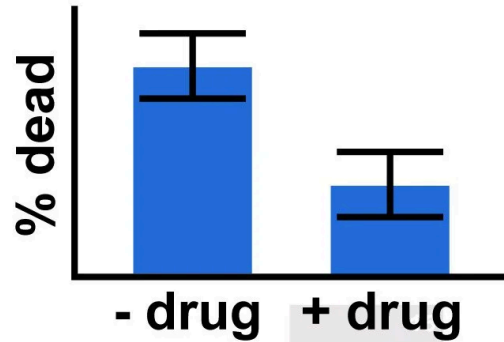
# A guide for choosing the most common statistical tests

| Q1                               | Q2                               | Q3                       | Q4                                | Q5                                | Statistical test                     |
|----------------------------------|----------------------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------------------------|
| Bivariate / Mutivariable         | Difference / Correlation         | Independent / Paired     | Type of outcome (and Normality)   | No of groups                      |                                      |
| Bivariate                        | Difference                       | Independent (un-paired)  | Continuous (Normal)               | 2                                 | Student's t-test                     |
|                                  |                                  |                          |                                   | >2                                | One-way ANOVA                        |
|                                  |                                  |                          | Continuous (Non-normal)/ Ordinal  | 2                                 | Mann-Whitney U test                  |
|                                  |                                  |                          |                                   | >2                                | Kruskal-Wallis H test                |
|                                  |                                  |                          | Nominal                           | 2                                 | Chi-square test/ Fisher's exact test |
|                                  |                                  |                          | >2                                | Chi-square test                   |                                      |
|                                  |                                  | Time to Event (survival) |                                   | Log-Rank test (Kaplan-Meier plot) |                                      |
|                                  |                                  | Dependent (paired)       | Continuous (Normal)               | 2                                 | Paied t-test                         |
|                                  |                                  |                          |                                   | >2                                | Repeated measured ANOVA              |
|                                  | Continuous (Non-normal)/ Ordinal |                          | 2                                 | Wilcoxon signed-rank test         |                                      |
|                                  |                                  |                          | >2                                | Friedman test                     |                                      |
|                                  |                                  | Nominal                  | 2                                 | McNemar's test                    |                                      |
|                                  | Correlation                      | Continuous (Normal)      |                                   | Pearson's correlation (r)         |                                      |
| Continuous (Non-normal)/ Ordinal |                                  |                          | Spearman's correlation ( $\rho$ ) |                                   |                                      |
| Nominal (2 levels)               |                                  | 2                        | Spearman/Kappa (Agreement)        |                                   |                                      |
| Multivariable                    |                                  | Continuous               |                                   | Linear Regression                 |                                      |
|                                  |                                  | Ordinal                  |                                   | Ordered Logistic Regression       |                                      |
|                                  |                                  | Nominal                  | (2 levels)                        | Binary Logistic Regression        |                                      |
|                                  |                                  | Nominal                  | (>2levels)                        | Multinomial Logistic Regression   |                                      |
|                                  |                                  | Time to Event (survival) |                                   | Cox Regression                    |                                      |
|                                  |                                  | Count variable           |                                   | Poisson regression                |                                      |

# Statistical Significance Tests

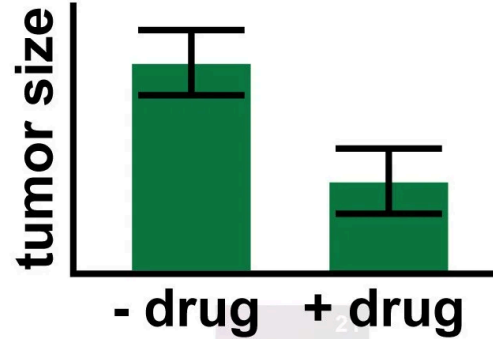
## Fisher's Exact Test

x-axis: 2 categories (- or + drug)  
y-axis: 2 categories (dead or alive)



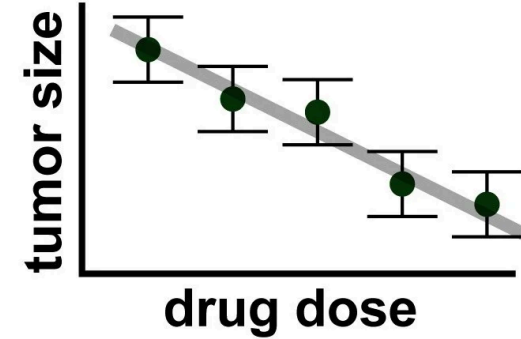
## Students T-Test

x-axis: 2 categories (- or + drug)  
y-axis: continuous (tumor size)



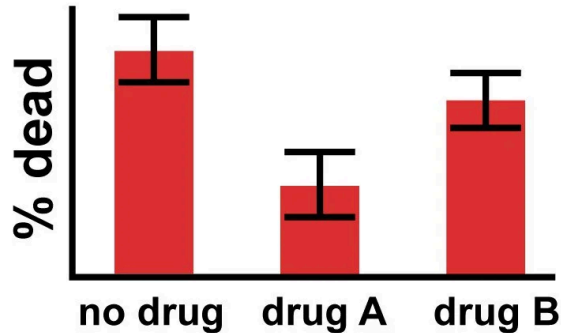
## Regression Analysis

x-axis: continuous (drug dose)  
y-axis: continuous (tumor size)



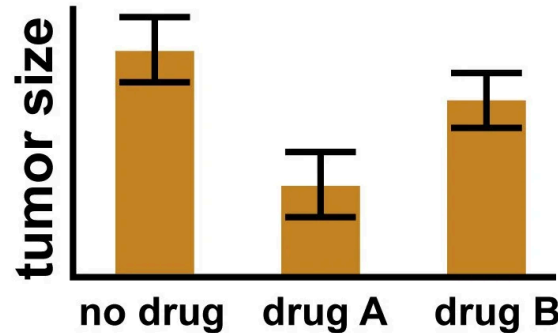
## Chi-Square Test

x-axis: >2 categories (drug A, B, etc.)  
y-axis: >2 categories (dead or alive)



## ANOVA

x-axis: >2 categories (drug A, B, etc.)  
y-axis: continuous (tumor size)



## Multiple Regression

x/z-axis: >2 continuous (drug dose)  
y-axis: continuous (tumor size)

