Figures and Schematic Representations

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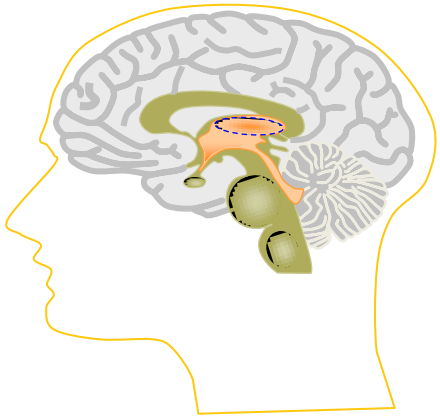
PhD Clinical Pharmacology



- Tables and figures are an integral part of a scientific paper and thesis.

- The bulk of the detailed information is typically presented in its **tables**.

- Many of the descriptions and basic concepts, key natural trends, key discoveries, and some of the conclusions are presented in **figures**.

Tables present numbers for comparison with other numbers or summarize concepts or other details of a study.

Graphs reveal trends or delineate selected features.

As you prepare your thesis/ paper, consider the following:

- If the text is crowded with **detail**, consider creating a **table**.

- Consolidate similar information into one table to let the reader compare easily

- Decide whether a difficult prose **explanation** could be better described with a **figure.**

- **Does your figure show more than could be said in a few well-chosen words?**

Data presented in tables should not be duplicated in graphs, and vice versa

TABLES

- ✓ Used for reporting extensive numerical data in an organized manner.
- ✓ They should be self-explanatory.
- ✓ Number the tables in the order in which they are cited in the text.

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Guidelines for Preparing Tables

- Always use **Microsoft Word's** table feature when creating a table.

- Spell out **abbreviations** at first mention in tables, even if they have already been defined in the text.

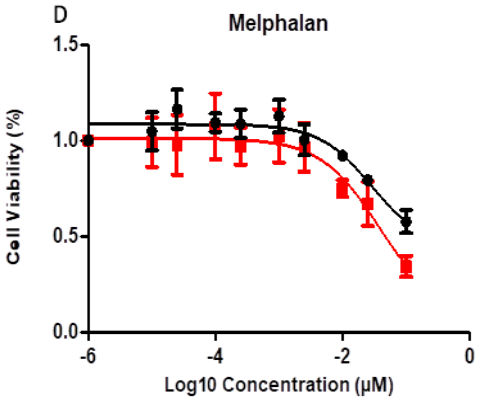
- To **highlight** individual values in tables, you may use boldface type, italic type, or underlining.

- **Do not use color or shading**

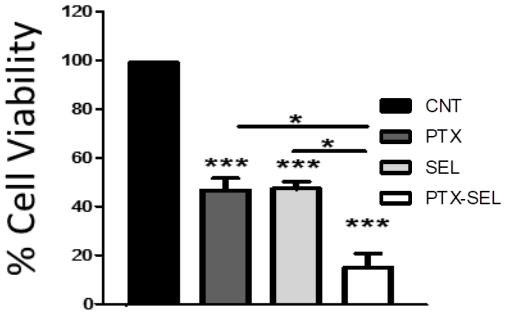
Structure of a Table

- Keep table titles brief but sufficiently detailed.
- The asterisks *, **, and *** are always used in this order to show statistical significance at the 0.05, 0.01, and 0.001 probability levels, respectively.
- For supplemental notes, use the following symbols in this order: †, ‡, §, ¶, #, ††, ‡‡, etc.
- Each column should have a heading describing the material below it.

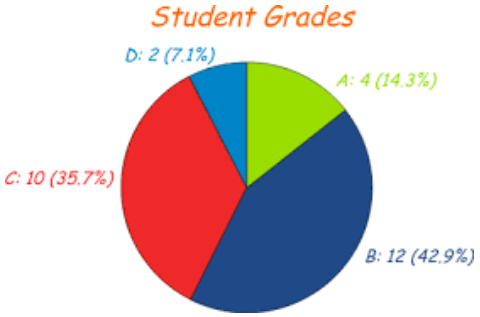
FIGURES



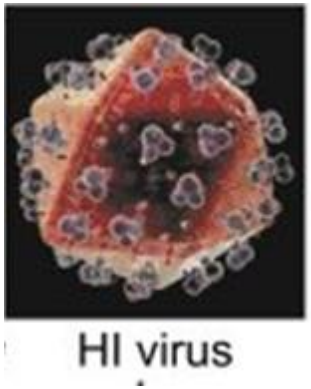
Line Graphs



Bar Graphs



Pie Graphs



Micrographs

FIGURES KINDS

Photographs

Line drawing

The style of the graphs and charts and the size and appearance of letters and numbers should be **consistent** within a paper/thesis.

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FIGURES /File Formats

- High-resolution JPEG, PDF, EPS, or TIF files are the preferred file types.
- PPT files are also acceptable if the figure was created in PowerPoint.

The final size of the published figure depends to some extent on where it will appear.

Use these recommended fonts where possible: Arial, Helvetica, Calibri, Times New Roman.

FIGURES /Style

- Use either sentence-style capitalization (only the first word has an initial capital) or title capitalization (each major word has an initial capital).

- Define all abbreviations in the caption, even if they appear in the overall abbreviations list.
- Italicize variables.
- Check the spelling of all text in each figure.

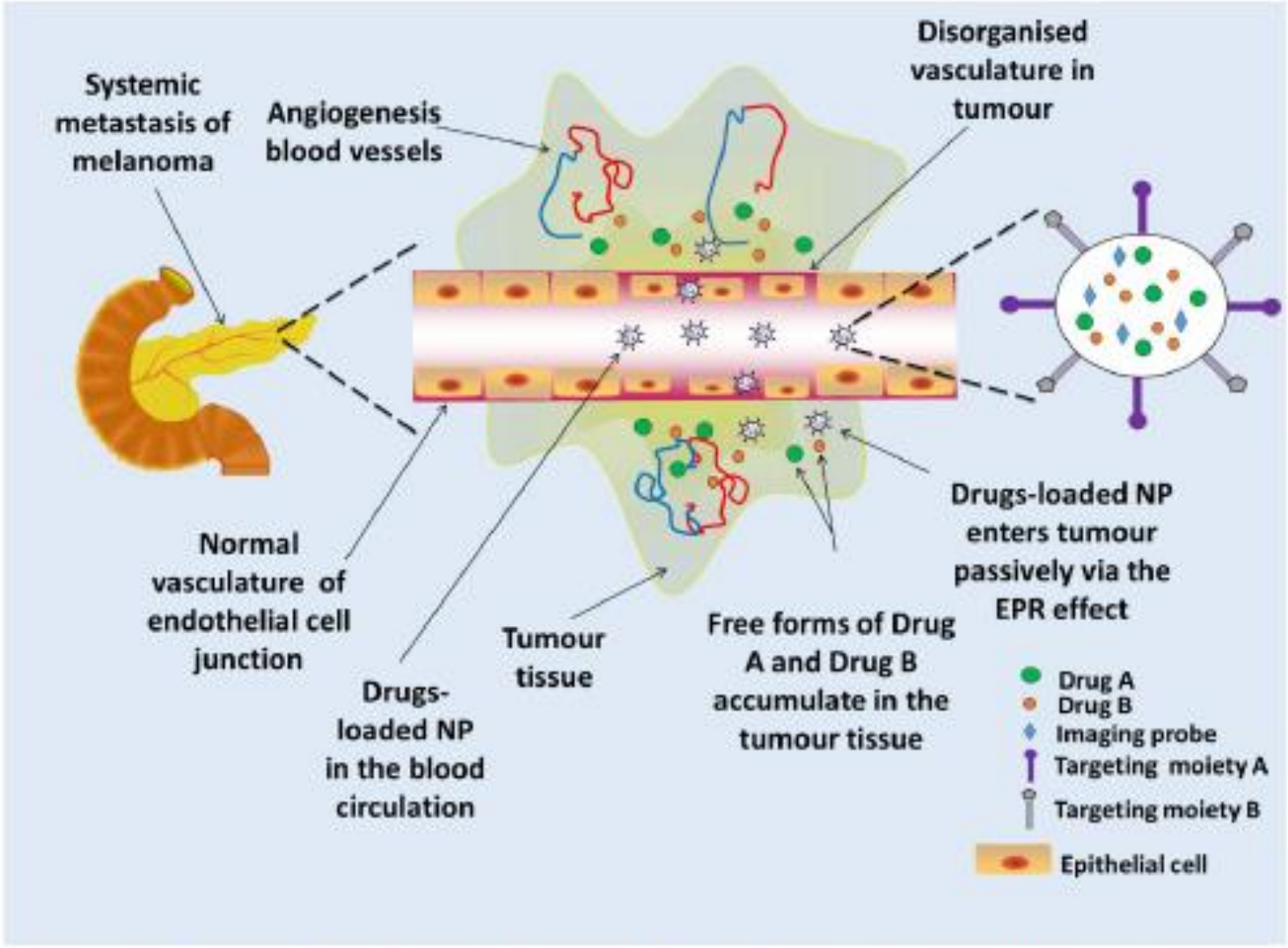
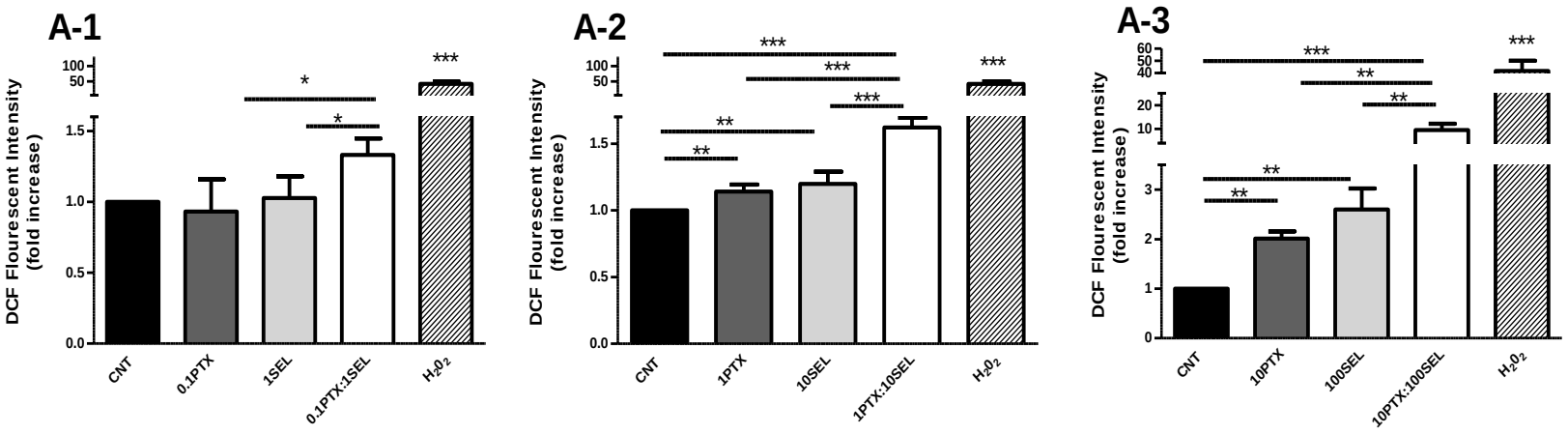


Figure 1.13: Drugs-Loaded NP Targeting by Enhanced Permeability and Retention (EPR) Effect. Disorganised tumour vasculature exhibiting large fenestrations between adjacent endothelial cells allows drugs loaded nanoparticles to reach and accumulate in the tumour microenvironment by the EPR effect due to poor lymphatic drainage.

The Graphic Elements

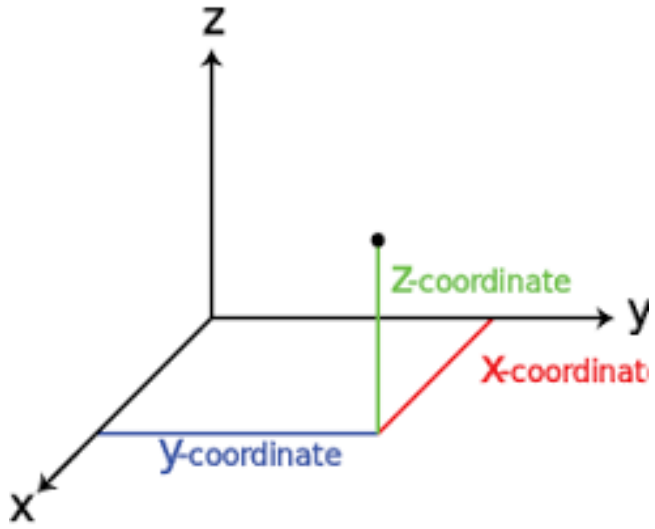
- For bar graph patterns, use solid black, solid white, black diagonal lines, sharp crosshatching, a sharp dot screen, or a random dot pattern.

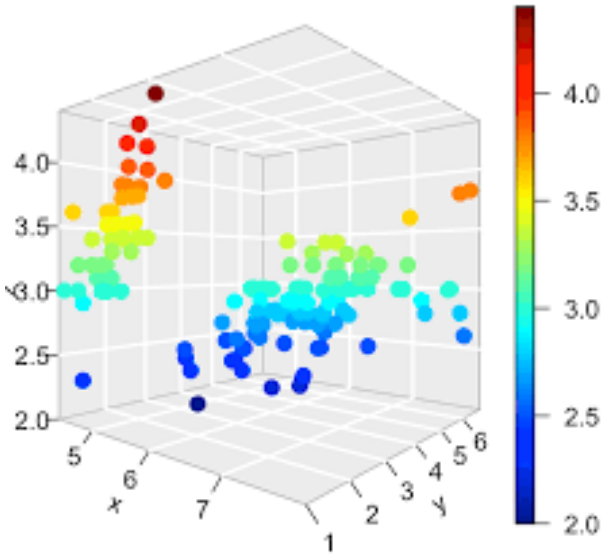


- Choose symbols and patterns of similar weight and tone to avoid making one set of data look inherently more important than another.

Avoid using decorative borders, shadows, and other three-dimensional effects.

Use three-dimensional graphs only to represent three dimensions of data.





Photographs

- Submit photographs as high-resolution TIF or JPEG files.

- If photographs are taken in a series, maintain the same height and angle of the camera, the same distance from the subject, and the same angle of the sun.

Make sure that the photograph shows something unique, interesting, and clearly identifiable.

Use photographs only if they show something essential to your point.

Photographs .. Cont.

- When two or more photographs are to be combined into one figure, each part of a composite figure should be clearly identified on the figure by large lowercase letters (a, b, c, etc.).

- If a person or named product is shown in the photograph, it is the responsibility of the author to obtain written permission for use of the photograph from the person or the manufacturer of the product.

Number figures in the order they are cited in the text.

A figure caption should be brief but sufficiently detailed to stand on its own.

Define abbreviations in the caption.

Do not be too brief in your caption. A caption that states only “Analysis of data” or “Results of Exp. 2,” for example, is not sufficient.

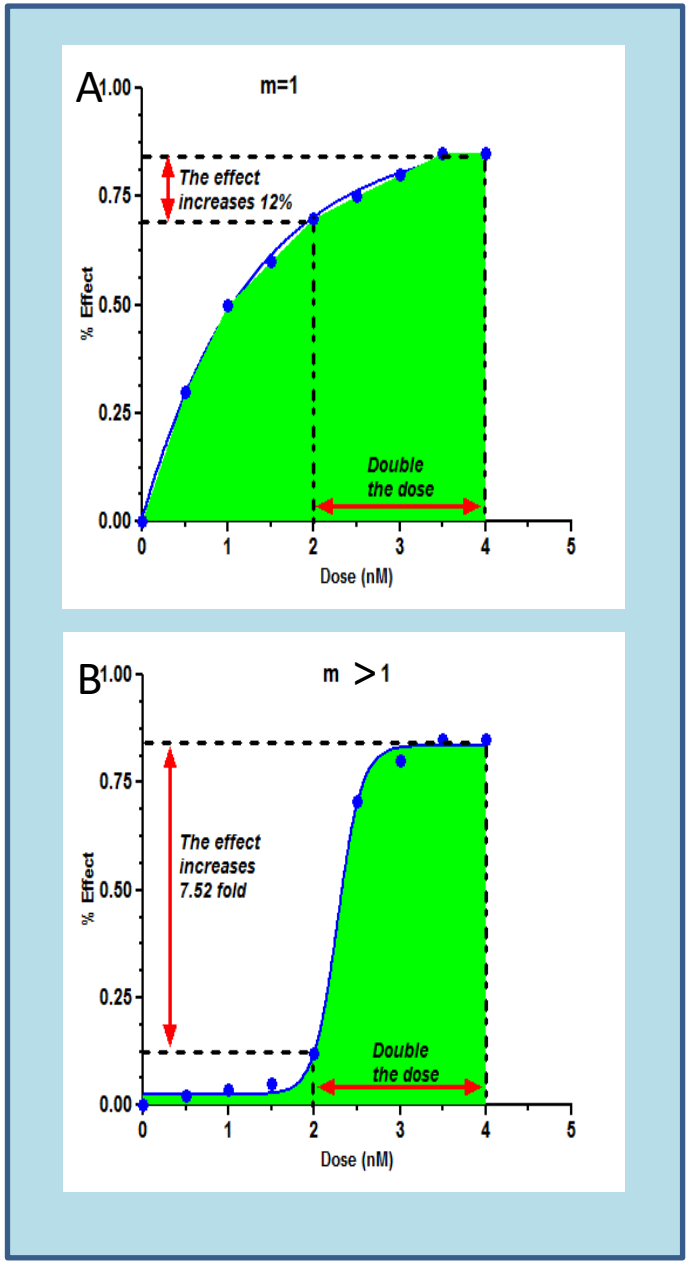

A
m=1
1.00
0.75
0.50
0.25
0.00
% Effect
The effect
increases 12%
Double
the dose
0
1
2
3
4
5
Dose (nM)
B
m > 1
1.00
0.75
0.50
0.25
0.00
% Effect
The effect
increases
7.52 fold
Double
the dose
0
1
2
3
4
5
Dose (nM)

Table 1.1: Risk Factors of CM ← Table legend

Risk Factor	Example(s) ← Column titles
UVR	Sunburns
	Regular use of tanning bed
History of Skin Cancer	Personal and family history of CM and NMSC
Skin Phenotype	White race
	Blonde hair
Medications	Chronic photochemotherapy
	Immune suppressants
Medical condition	Genetic disorders (e.g. xeroderma pigmentosum)
	Immune suppression ← Table body/ data
	AIDS
	Transplant recipient
Environmental	Pesticides
	Heavy metals
Skin lesions	Dysplastic nevi
	Number of Nevi
Others	Age (>40 years)
	Gender (males>females)
	Geographic location
	Obesity

Abbreviations: UVR, ultraviolet irradiation; CM, cutaneous melanoma; NMSC, non-melanoma skin cancer; AIDS, Acquired Immune Deficiency Syndrome ← Footnotes

Table 3.1: FDA Approved Drugs for Metastatic Melanoma

Class of treatment	Type of treatment	Drug	Main mechanism of action	Reference
Chemotherapy	Chemotherapeutic agent	DTIC	Alkylating agents	(207,345,349,377,378,387,601–607)
Targeted therapy	BRAF inhibitors	Vemurafenib, Dabrafenib	Interact with MAPK pathway components	(100,286,414,429,431–434,608–613)
	MEK inhibotors	Cobimetinib, Trametenib	Interact with MAPK pathway components	(100,286,428,430,433,447,614,615)
Immune therapy	Check point inhibitors	ipilimumab	CTLA-4 inhibitor	(325,361,414,471,612,616)
		Nivolumab, Pembrolizumab	PD-1 inhibitor	(463,470,617–622)
	Cytokines	IFNs, ILs	Boost the immune system	(164,351,354,355,457,459)

Abbreviations: DTIC, dacarbazine; IFN, interferon; IL, interleukin; CTLA-4 inhibitor, cytotoxic T-lymphocyte-associated protein 4 inhibitor; PD-1 inhibitor, programmed death-1 inhibitor

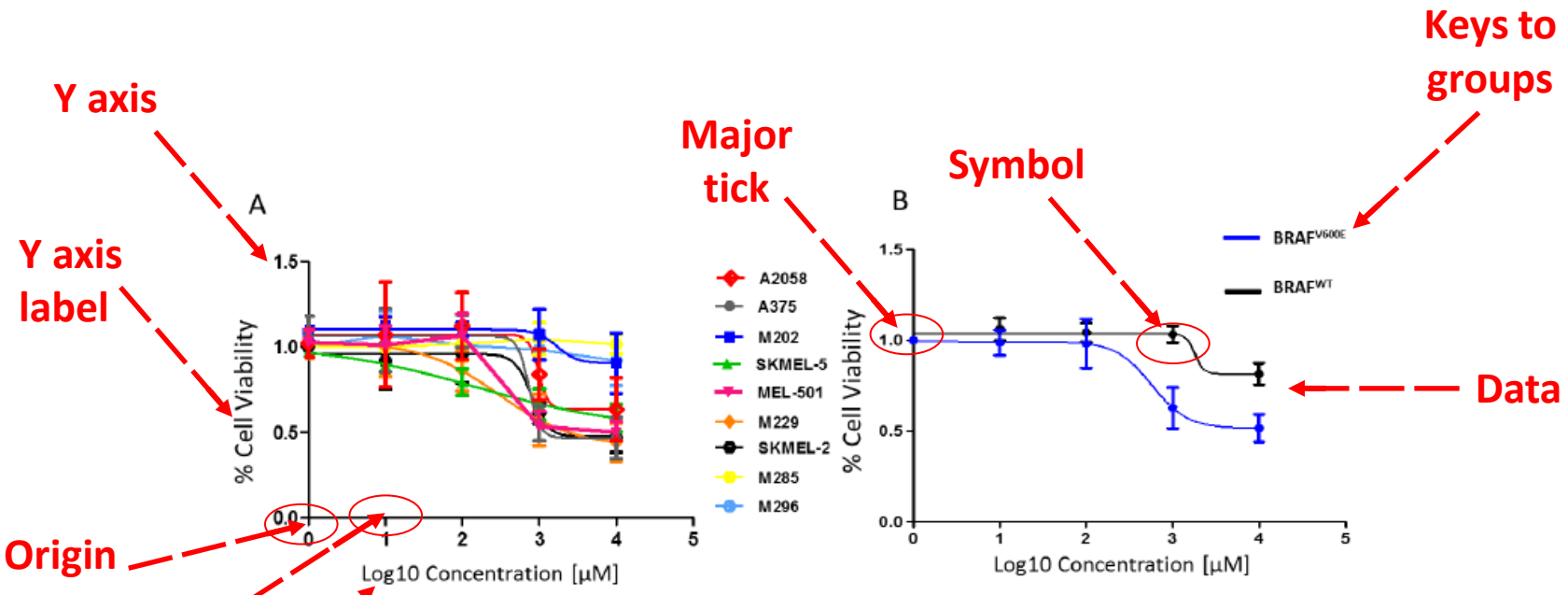


Figure 3.2 Vemurafenib Decreases Cell Viability of *BRAF*^{V600E} Mutant Melanoma Cells in Dose Dependent Manner. (A) Nine vemurafenib treated melanoma cell lines, **(B)** *BRAF*^{V600E} (A375, A2058, M229, SK-MEL-5, SK-MEL-28, and MEL-501) mutant and *BRAF*^{WT} (M202, M296 and M285) melanoma cell lines. Melanoma cell lines were dispensed in 96-wells plates. On the second day, vemurafenib was added to achieve the required concentrations. After another 72 hr of incubation, cell viability was measured by MTT assay. n=3. Error bars show mean ± sd.

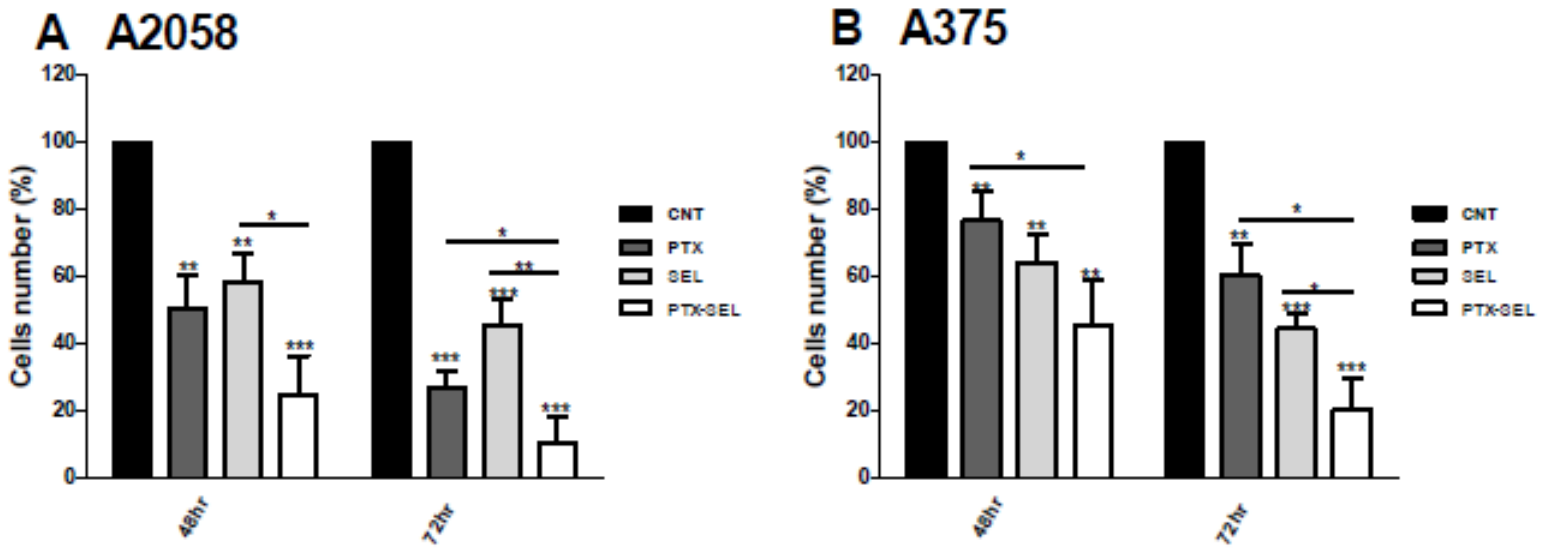


Figure 4.9: PTX-SEL Combination Therapy Reduces Melanoma Cell Numbers. A2058 (A) and A375 (B) melanoma cells were seeded at seeding density $2.50*10^5$/well in 12-wells plate. After 24 hr, A2058 melanoma cell line then was treated with 1 time of PTX IC_{50} (0.004475 μM), 10 times SEL IC_{50} (2.72 μM) and their combination. A375 cell line was treated with PTX (1*IC_{50}; 0.04546 μM), SEL (10*IC_{50}; 1.389μM) and their combination for 48 and 72 hr. Cell viability was measured using an automated cell counter. Each column represents mean±sd. n=3. *P < 0.05; **P < 0.01; ***P< 0.001. Abbreviations: PTX, paclitaxel; SEL; PTX-SEL, paclitaxel and selumetinib combination. * Above bars and lines represents comparison to control and relevant bar respectively.

References

- Seddigh and Jolliff (1988). A book-length analysis of graph design for scientific publications is available in Cleveland's (1994) The Elements of Graphing Data.

- Publications Handbook and Style Manual. ASA–CSSA–SSSA, 5585 Guilford Rd., Madison, WI 53711, USA.

Thanks