Chapter *18*

Working with vector Art

practical
computing
for
biologists

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20th of April

HADDOCK • DUNN

Practical computing *for* **biologists**

Chapter **18**

Working with Vector Art

Creation of vector art with Adobe Illustrator
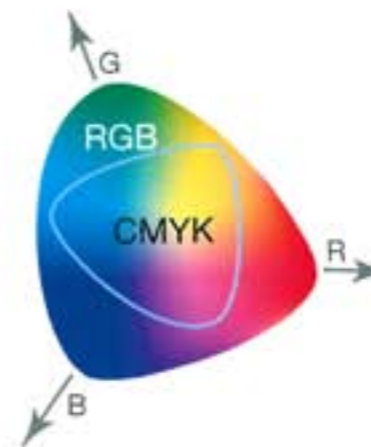
- *Importing graphics and illustration in Illustrator*
- *Drawing a shema directly in Illustrator*
- *Converting a photo or a scan in a editable schema*

Anatomy of vector Art

- *How to use Bézier curves*
- *Selecting and manipulating objects*
- *Transparancy and layers*
- *Illustrator tips and shortcuts*

InDesign: how to design scientific figures and books

- *Why using Indesign for generating your PhD memory*
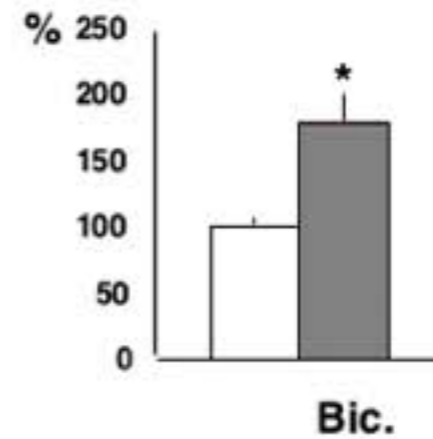- *Creating figures with picture, graphics and photos*
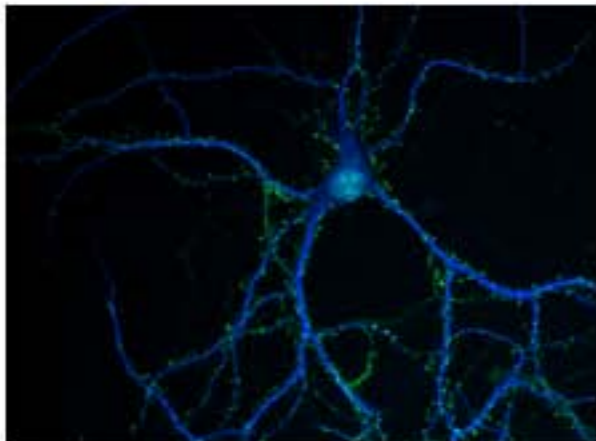
General Image Types

• **Vector-based image :**

Made of editable lines, curves, and shape which are defined by a few key properties.

• **Pixel-based image = bitmap = raster art :**

Made of uniform grid or colored dots, named the pixels.

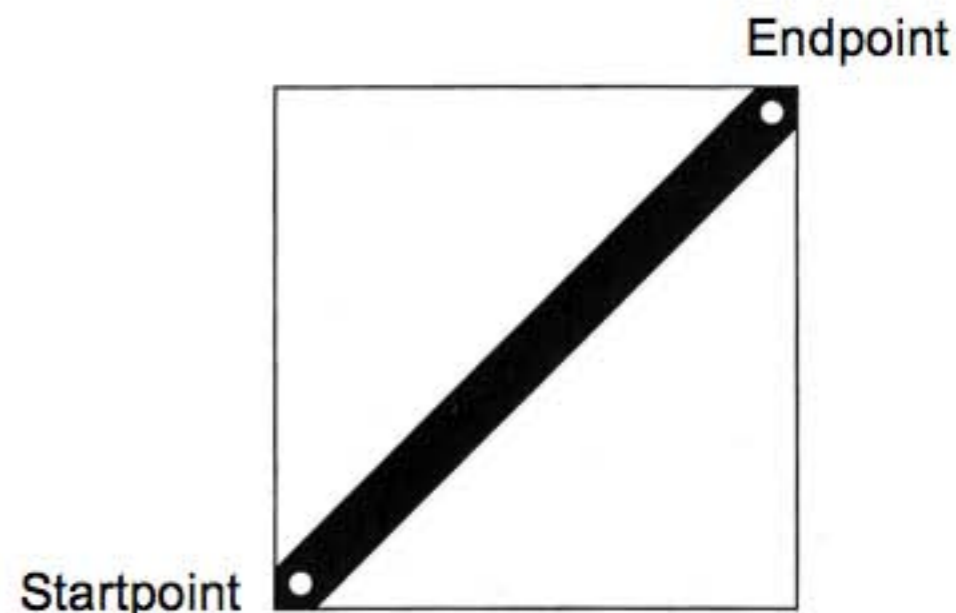Photos are typical pixel-based images.

General Image Types

• *Vector-based image :*
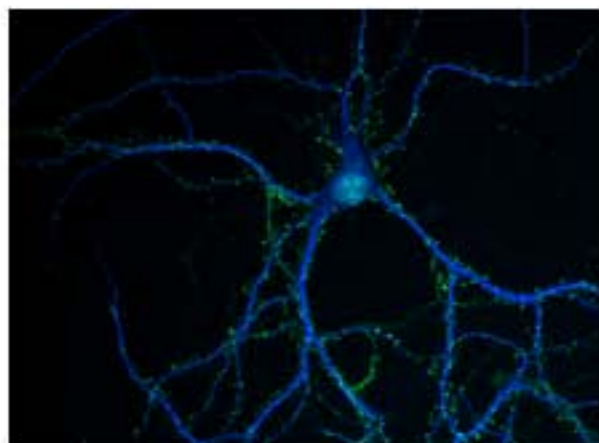
In vector art the line is defined by 2 points.

Storing info:
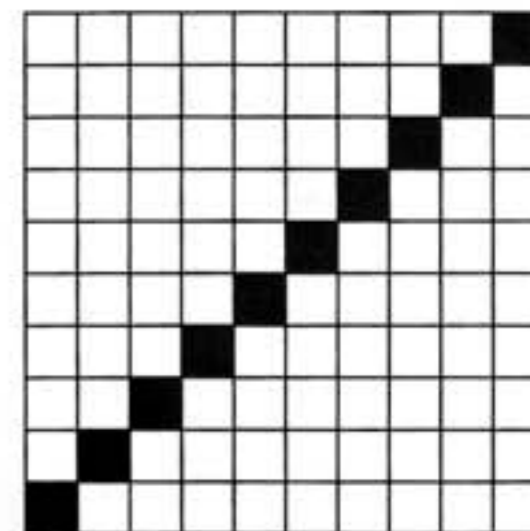- X and Y of each point
- color of line, width

Endpoint

Startpoint

A 2 point vector line

• *Pixel-based image = bitmap = raster art :*

In pixel art the line consists of many points

of a particular color.

Storing info:
- color of each point of the grid
- size of the image 10x10 or 100x100 ?
- this values increase with size

A 100-pixel (10x10) line

General Image Types
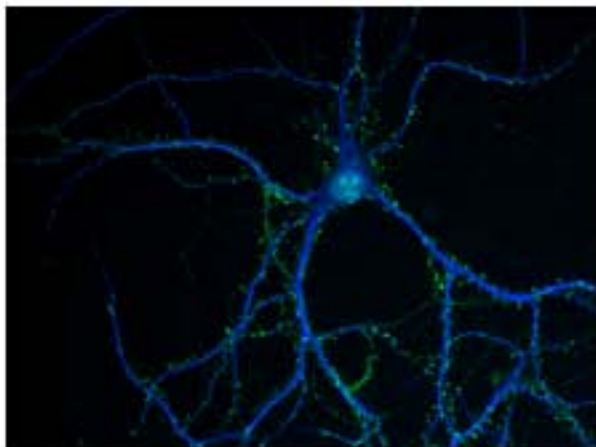
• *Vector-based image :*

In vector art the file format can be :

- pdf : portable document format (Adobe)
- eps : encapsulated post-cript format (Adobe)
- svg : scalable vector graphics (XML)
- AI: Adobe Illustrator

Vector art format

• *Pixel-based image = bitmap = raster art :*

In pixel art the file format can be :

- JPEG : Joint Photographic Expert Group (compressed)
- PNG : Portable Network Graphic (screen capture)
- TIFF : Tag Image File Format
- BMP: Bitmap (Microsoft, IBM)
- PSD : Adobe Photoshop

Pixel art format

General Image Types

• *Vector-based image :*

In vector art the file format can be :

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Pixel art format

Generating vector art

There are 3 common ways to create vector art :

- Export a graph or a phylogeny tree from another program (Excel, Clustall, …)
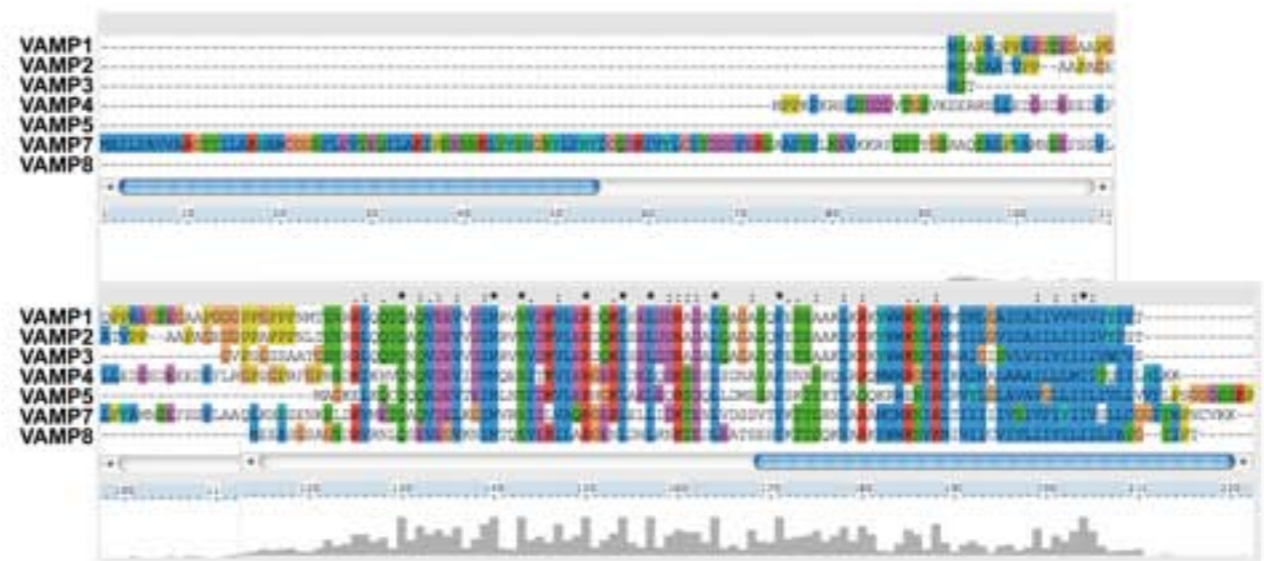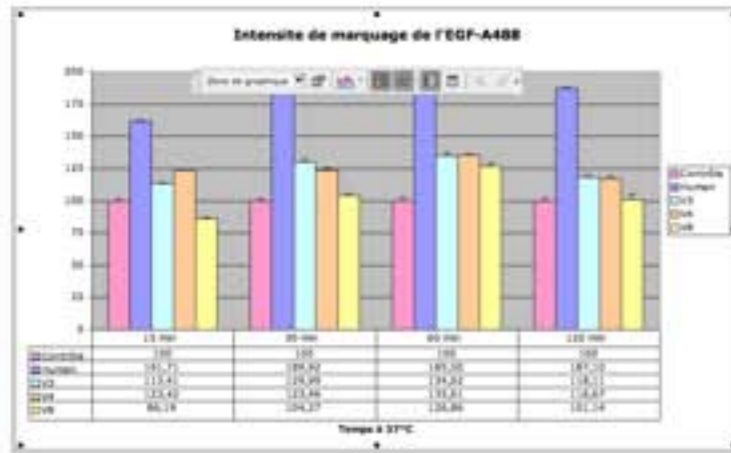
- Draw an image

- Trace an existing piece of pixel art

Exporting graph from excel

Importing graph from excel

Generating vector art (clustal)

There are 3 common ways to create vector art :

- Export a graph or a phylogeny tree from another program (Excel, …)

Drawing in Illustrator

• <u>*From basics forms to complex shema :*</u>

Illustrator Panels

Illustrator Panels

Illustrator Panels

Illustrator Panels

Illustrator Panels

Illustrator Tools

Bezier curves

FIGURE 18.3 Bézier curves The three anchor points of these curves are all the same, but their control handles give them very different shapes: (A) smooth anchor; (B) corner point; (C) one handle retracted; (D) both handles retracted; (E) smooth anchor point, but with the control handles rotated 180° relative to (A).
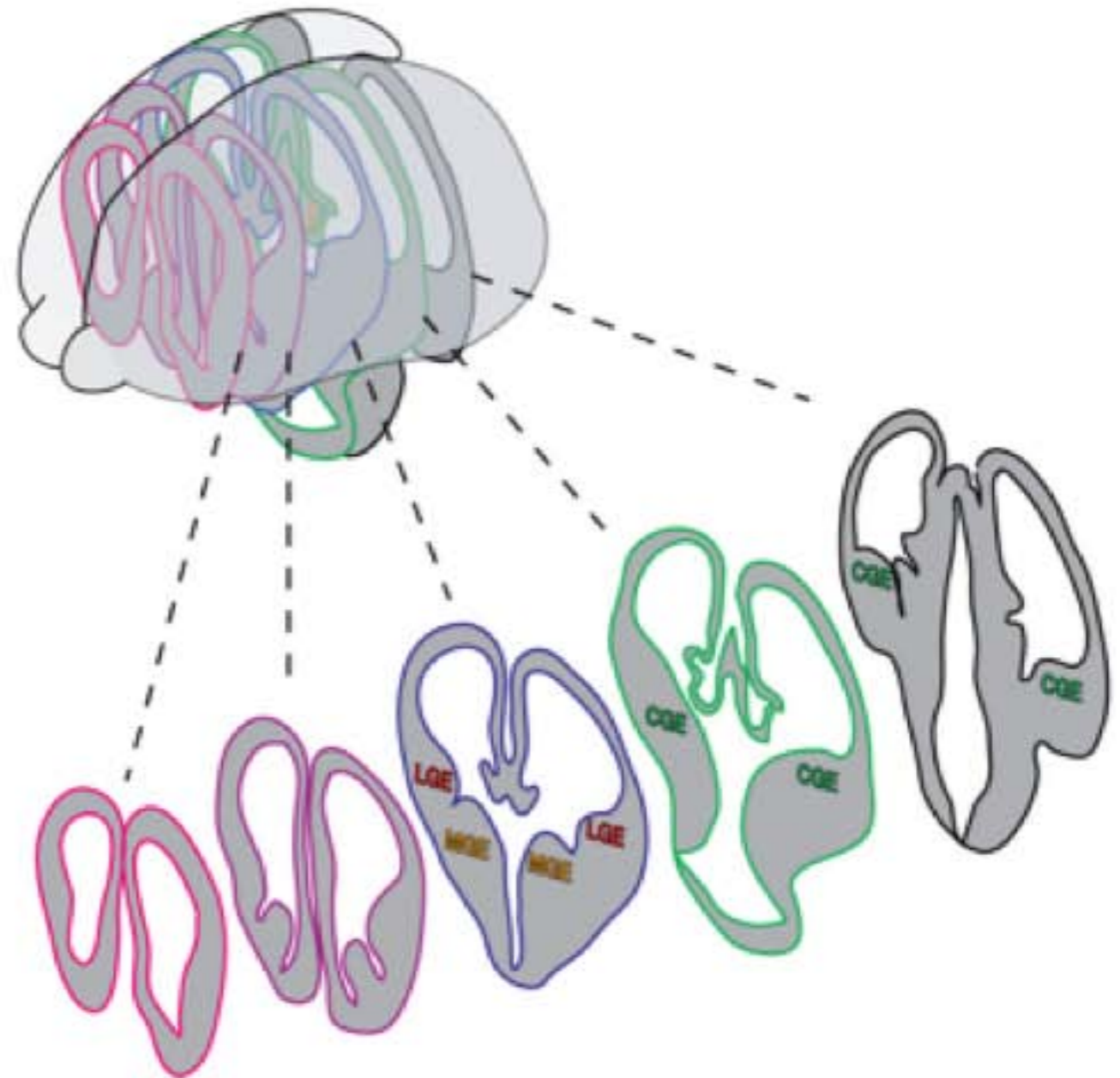
Handle

Control line

Corner anchor

End anchor

Smooth anchor

PathFinder

Drawing in Illustrator

• **From basics forms to complex shema :**

Drawing in Illustrator

• Tracing over an Illustration :

1. Import
2. Lock the object
3. Trace over the object
4. Adjust point

Generating vector art

There are 3 common ways to create vector art :

- Trace an existing piece of pixel art

Practical computing *for* *biologists*

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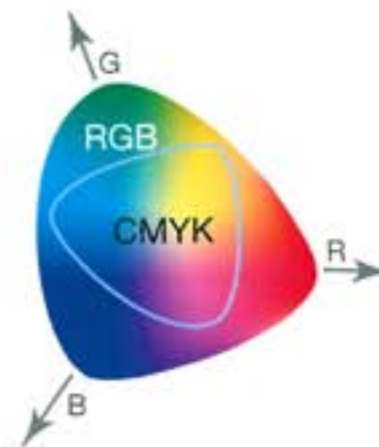
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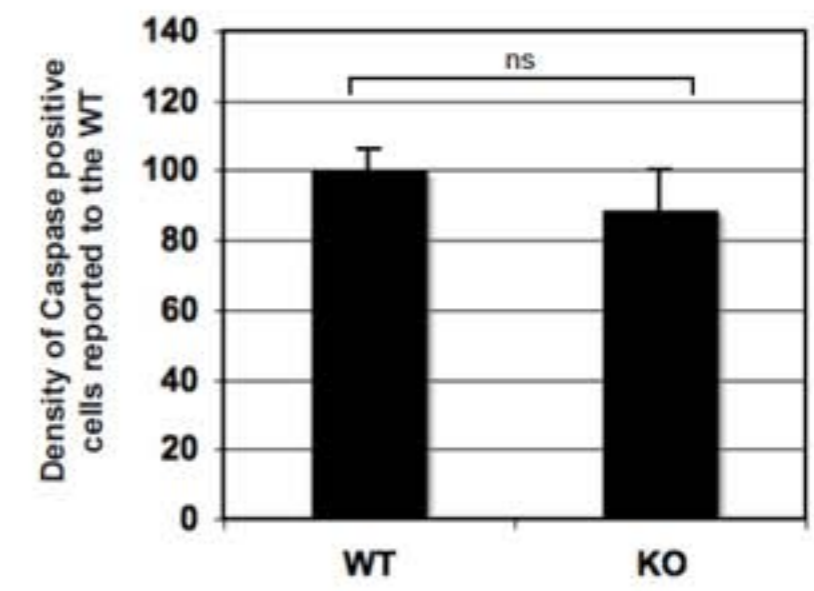- *Transparancy and layers*
- *Illustrator tips and shortcuts*

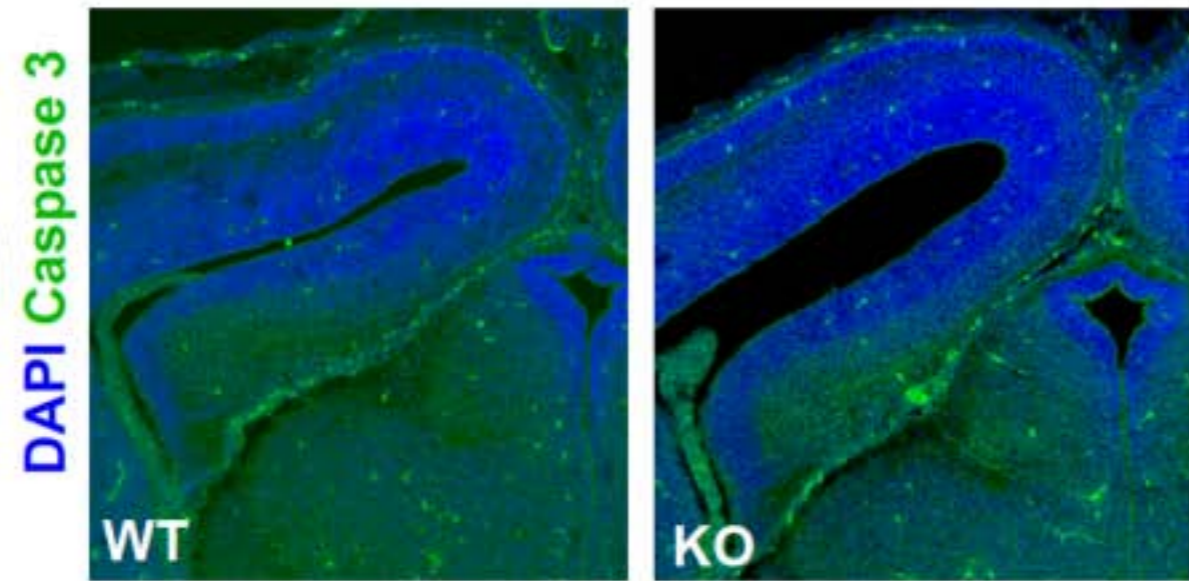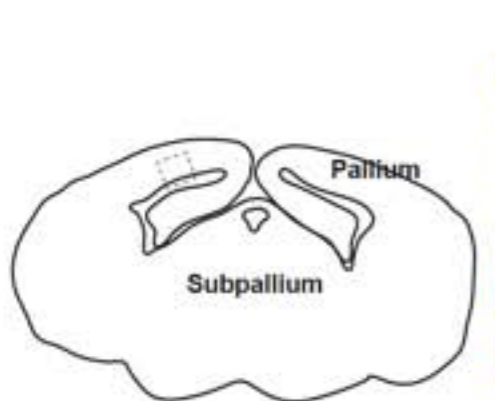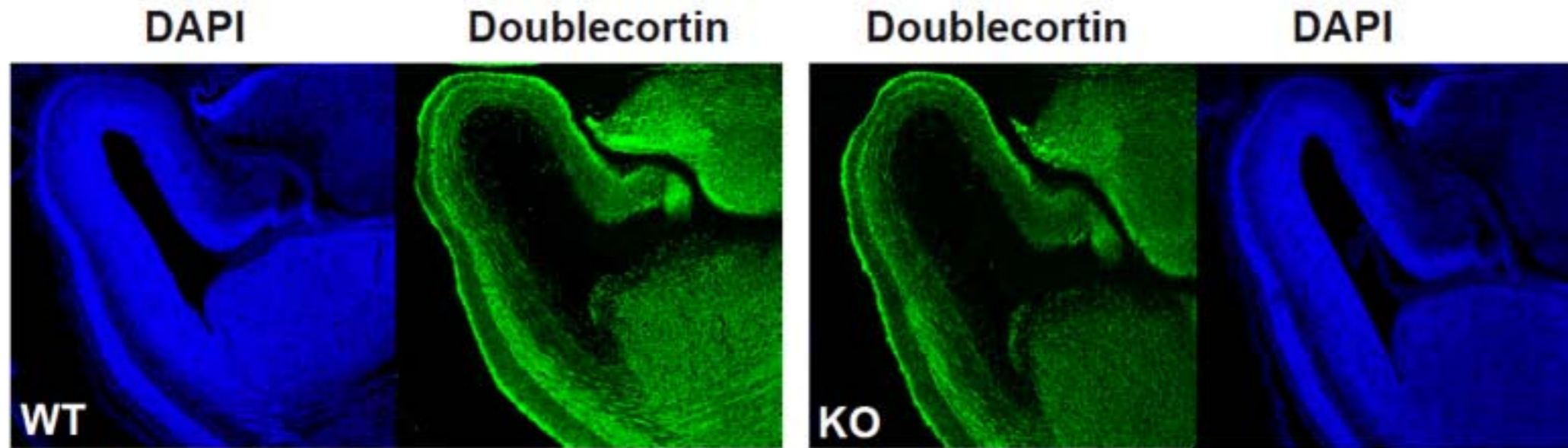## InDesign: how to design scientific figures and books

- *Why using Indesign for generating your PhD memory*
- *Creating figures with picture, graphics and photos*

Combining vector & pixels

- Graphical elements and annotations should be kept with vector art (editable, scalable).

- Most vector file format (such as PDF) allow importation of photos, which will be embedded in file.