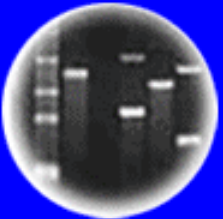


DNA  
Genetic Code of Life



Entire Genetic Code  
of a Bacteria



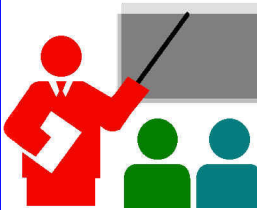
DNA Fingerprinting



Cloning: Ethical Issues  
and Future Consequences



Plants of Tomorrow

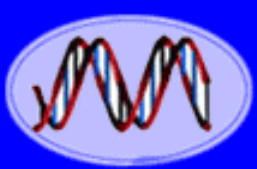


# HC70AL Summer 2014 Gene Discovery Laboratory Professor Bob Goldberg

## How to Give a Research Talk

8/25/14

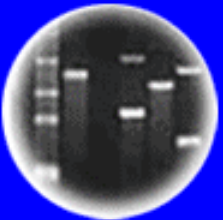




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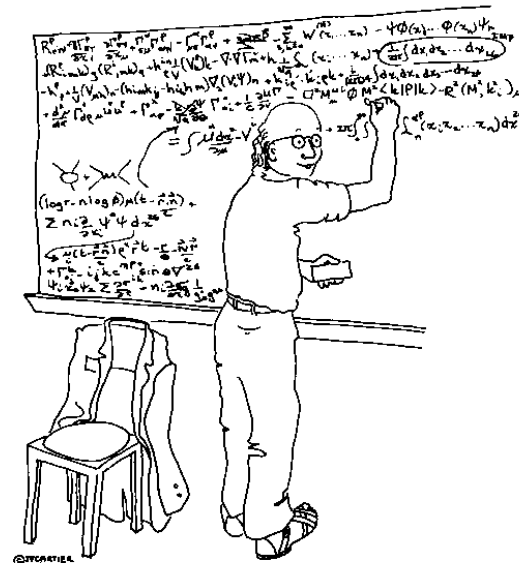


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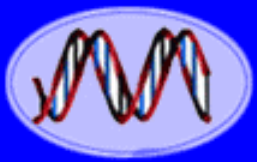


No wonder. He was stuck on this slide for last 15 minutes!

## Making a Research Talk is Hard Work!



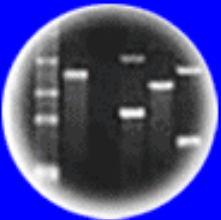
"At this point we notice that this equation is beautifully simplified if we assume that space-time has 92 dimensions."



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DNA Fingerprinting



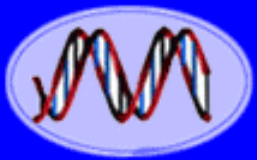
Cloning: Ethical Issues  
and Future Consequences



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# The “Goldberg” Method

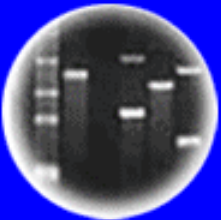
- Do Your Conceptual Homework
- Analyze and Organize Your Data
  - Know Your Data “COLD”
  - Outline Your “Game Plan”
    - Organize Your Talk
    - Make Your Slides
  - Every Picture Tells a Story
  - Practice, Practice, Practice
- Learning About Mirrors and Style
  - Diction and Use of Words
- Out of Body Experience (Anticipation)
  - Answering Questions



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DNA Fingerprinting

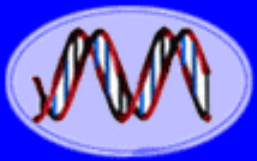


Cloning: Ethical Issues  
and Future Consequences



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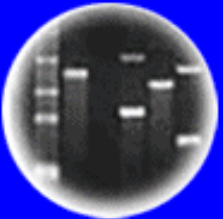
Do Your Conceptual Homework



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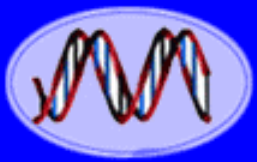
Cloning: Ethical Issues  
and Future Consequences



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## Analyze and Organize Your Data

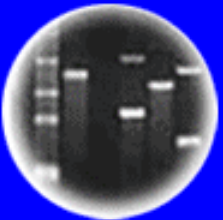
- Question By Question!
- Answer By Answer!



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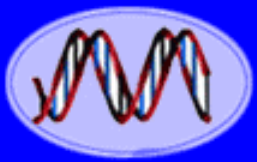


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## Know Your Data “Cold”

- Every Question, Hypothesis  
Result, Procedure, Concept, and  
Interpretation
- And Every Alternative Explanation

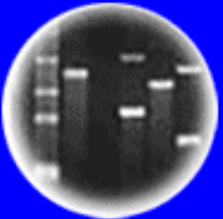
**YOU are the Expert on YOUR  
Experiment!**



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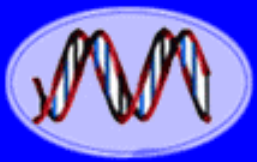
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## Outline Your “Game Plan”

- Forming a Circle
- Connecting the Dots
- Telling a Story

(If You Don't Have Anything To Say,  
Don't Give a Talk)

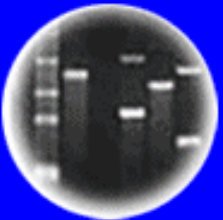




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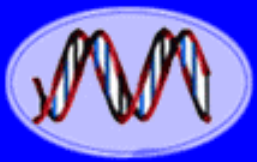


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## Organize Your Talk

- What Are the Questions?
- What Are the Results?
- What Slides Support Each Question and Results Conceptually?

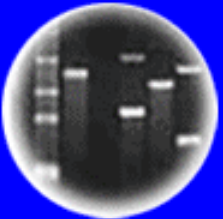




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# General Organization of Your Talk

## Introduction

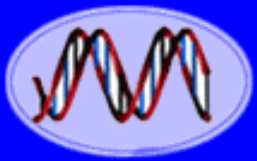
1. Tell Your Audience Where You Are Going -  
What You Are Going To Say? What the  
Major Questions and Conclusions Are

## Results

1. What Slides Support Each Question and  
Results Conceptually?
2. Connect the Dots

## Conclusions and Future Questions

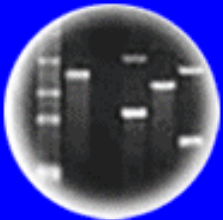
1. Reiterate the Main Conceptual Results
2. Future?



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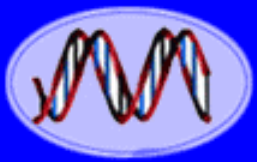
Cloning: Ethical Issues  
and Future Consequences



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## Making Slides

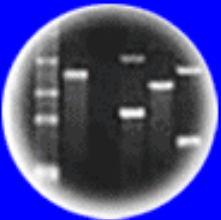
1. Simple, Clean, and Conceptual
2. Must Be Self-Explanatory - Clear Labels
3. Minimum Animations (Only To Illustrate an Important Concept-They Distract Audience)
4. Bold Comic Sans MS or Arial Fonts (Clean!)
5. White Background
6. No Fancy Templates-They Distract Audience



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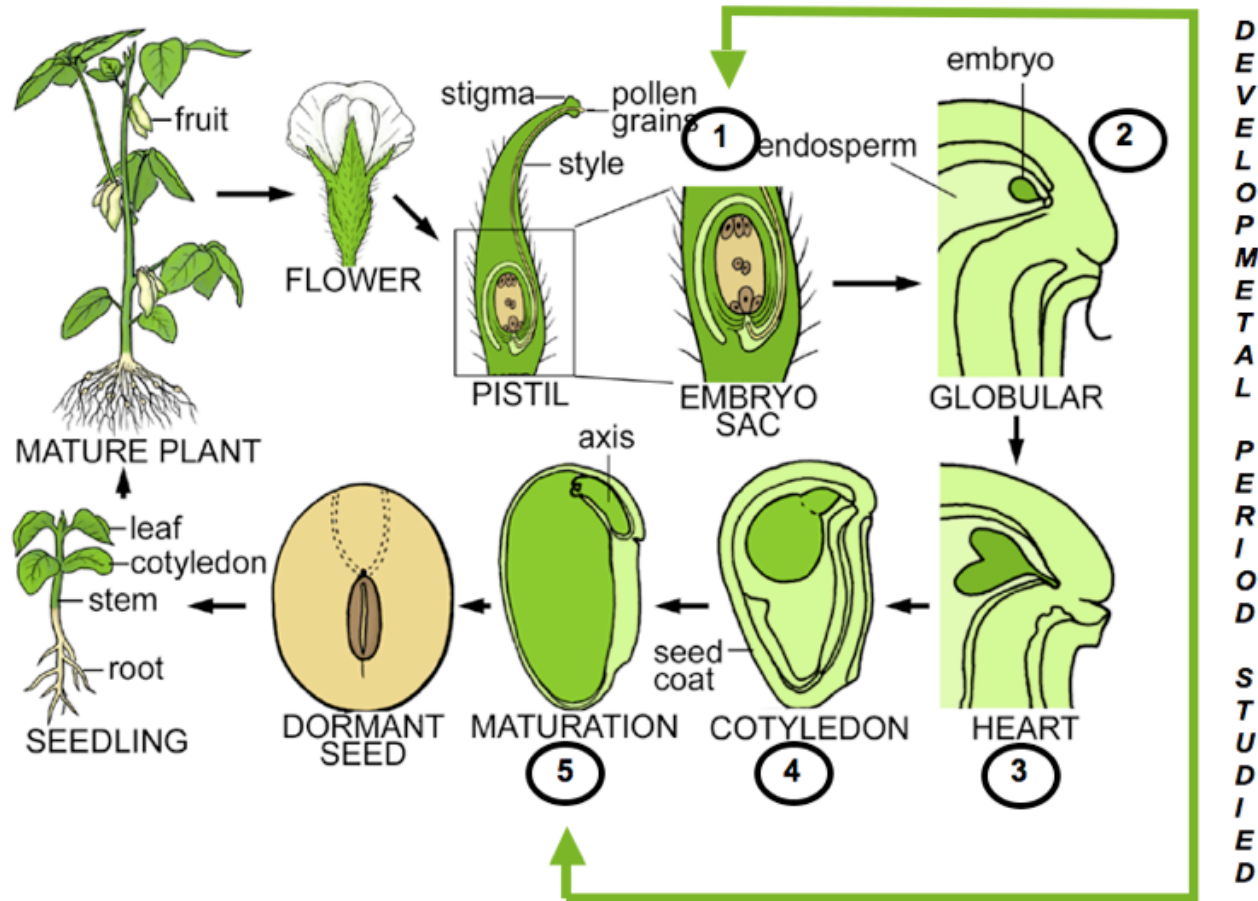
Cloning: Ethical Issues  
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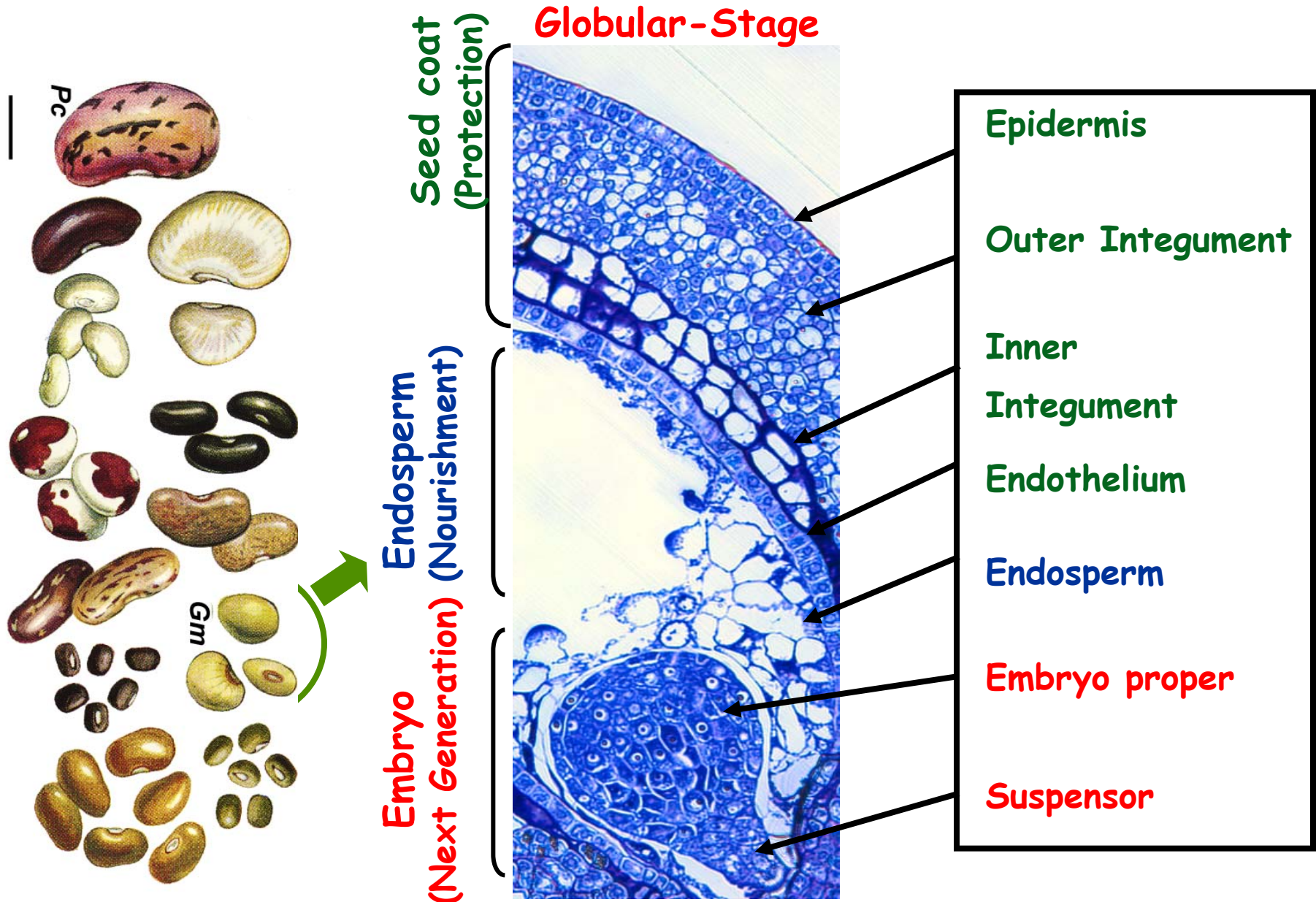
Every Picture Tells a Story

## *Seeds and Seed Formation-Why Seeds?*



*Note Colors and Simplicity of Figure & Labels*

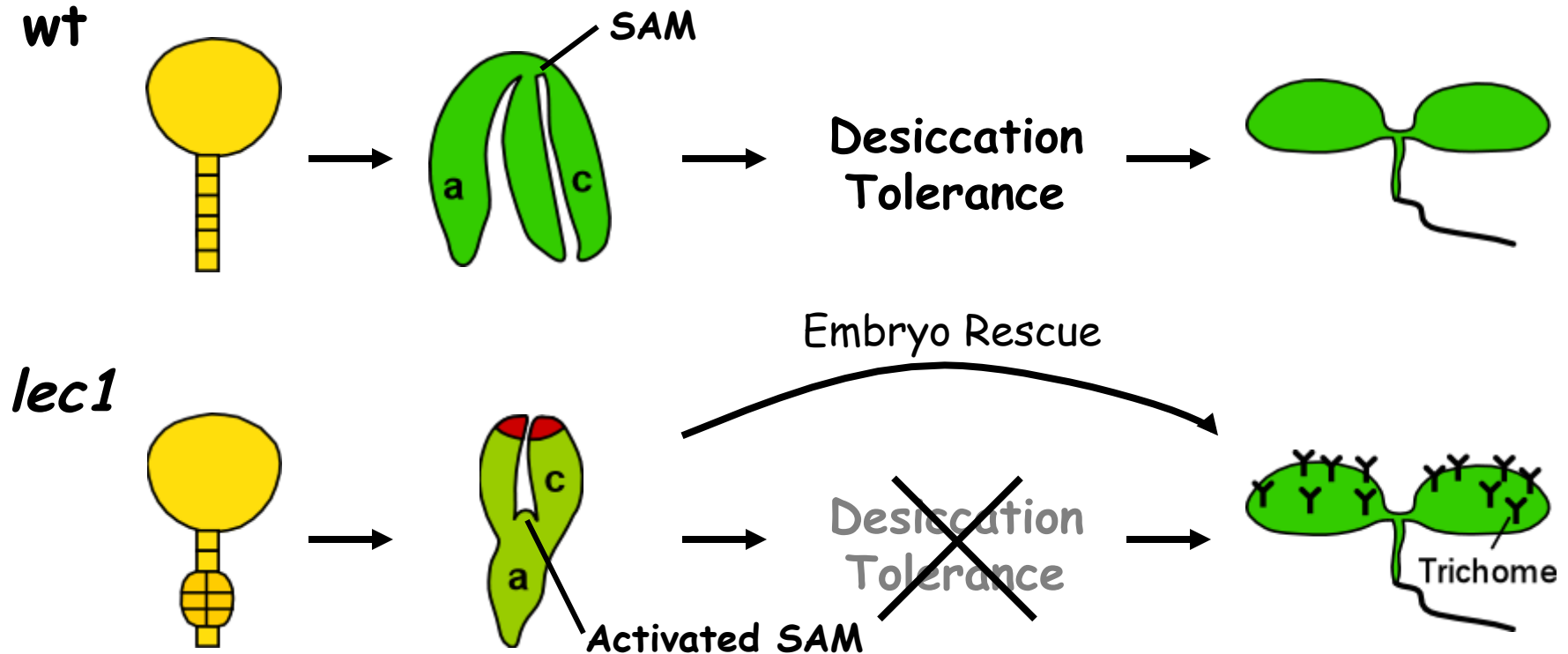
# *The Question: What Are the Genes Required to Make a Seed?*



*And How Are They Wired in a Plant Genome?*



# *leafy cotyledon1 (lec1) Mutants Disrupt Seed Development*



- *Suppression of Suspensor Embryonic Potential*
- *Development of Cotyledon Identity*
- *Initiation and Maintenance of Seed Maturation*
- *Inhibition Germination*

# Using Genomics & GeneChips to Analyze mRNA Populations



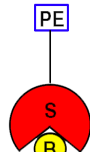
*Isolate Seed RNA*

*Synthesize Biotinylated cRNA probes*



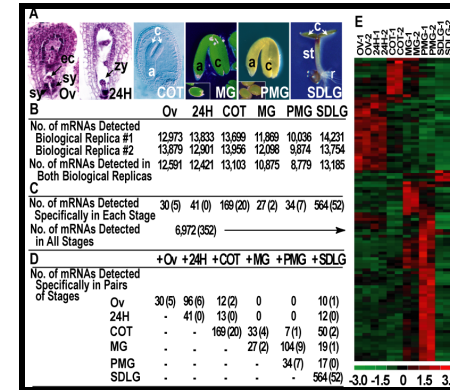
*Hybridize to GeneChip*

*Wash Off Unhybridized cRNA Probe*

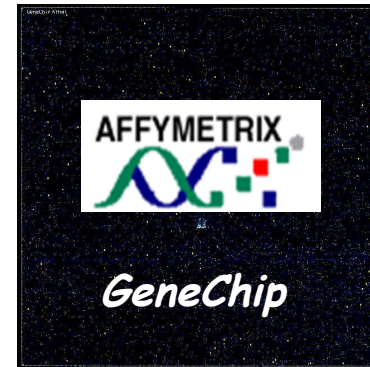


*Stain with Streptavidin  
Phycoerythrin Conjugate*

*Scan @ Excitation  
Wavelength of 488nm*

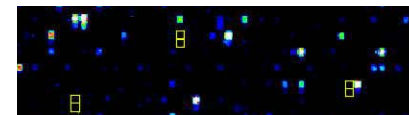


*Data Analysis*



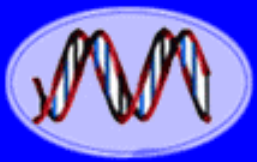
*~ 22,800 Arabidopsis Genes  
(~82% of Genome)*

*~ 30,000 Soybean Genes  
(~50% of Genome)*



*(Eleven 25-mer/gene)  
Scattered probe pairs*

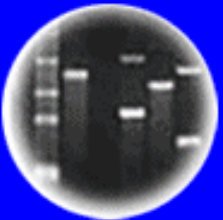




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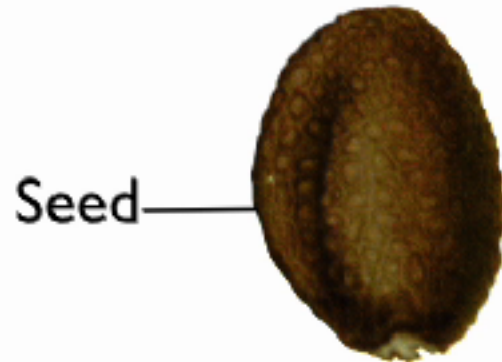


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## Use of Animation

- Minimize
- Keep SIMPLE
- Use To Illustrate or Highlight Important Concepts

In the Beginning....



*Simple Animation To  
Illustrate Important Concept  
MAKE IT UNIQUE & EYE CATCHING*

<http://estdb.biology.ucla.edu/seed/presentation>

*Using Laser Capture Microdissection (LCM) and  
GeneChips To Profile mRNAs in Specific Seed  
Cells, Tissues, and Compartments*

*Embryo Proper*

*Suspensor*

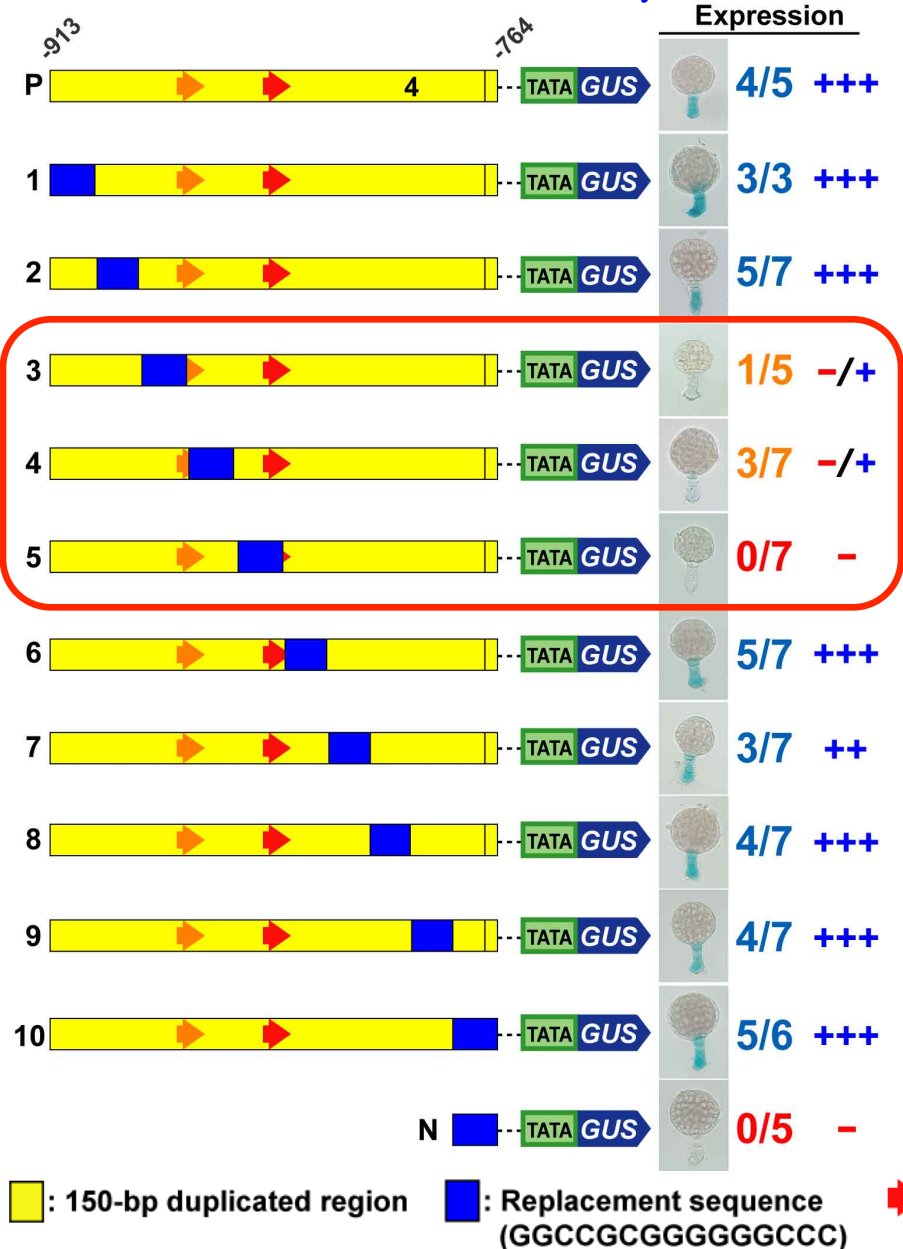
*Seed Coat*

*Arabidopsis Seed After Fertilization*

*[estdb.biology.ucla/seed/presentation](http://estdb.biology.ucla/seed/presentation)*

# What Sequences in the 4th Duplication Are Important for Suspensor-specific Transcription?

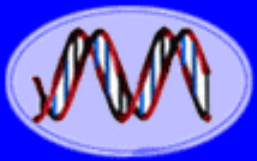
Are the 10-bp and the 10bp-like motifs important?



## Ten 15-bp fragments

1	aattttataacatttt
2	catgtttgtgtttgtt
3	tcaaagccta <b>GAAAA</b>
4	<b>ACGAA</b> gagttactat
5	tggtaat <b>GAAAAGCG</b>
6	<b>AA</b> gaaaaccacataa
7	taaaaacaaaatggc
8	acgacaatcaagaaa
9	aagtttttcacacaaa
10	actttttttcaaaatt

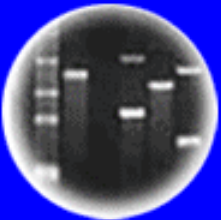
5' -GGCCGCGGGGGGCC-3'  
Replacement sequence



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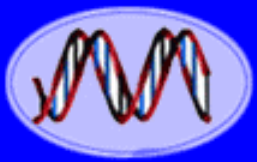


Cloning: Ethical Issues  
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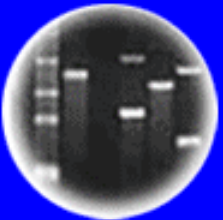
Practice, Practice, Practice  
(and MORE Practice!)



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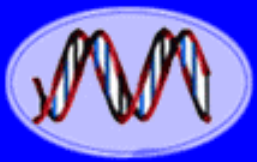


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## Learning About Mirrors and Style

1. Make Your Talk Interesting
2. Keep the Audience's Attention
3. Look Your Audience in the Eye!!
4. Be Alive and Animated At the Appropriate Times (Use Body Language)
5. Practice, Practice, Practice (No Practice-Terrible Talk!)
6. Use a Mirror or/or Tape Yourself!!
7. Stick To Your Time!!!!

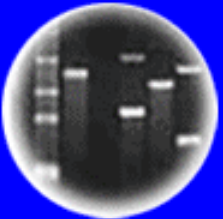




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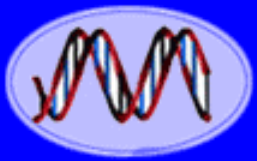
# How You Deliver the Talk is Just as Important as the Content!

- Make the Talk Interesting
- Make the Talk Exciting
- Make the Talk Captivating
- Make the Talk Memorable
- Make Each Talk Your BEST
- Make the Talk a PERFORMANCE

*If No One Says Anything to You  
After Your Talk, It was Not  
Effective!! That's Your Yardstick!!*

**You Have to Make the Talk  
Exciting by Hard Work and  
Preparation!!!!!!**

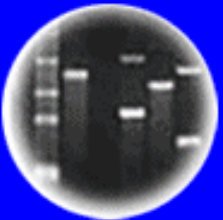




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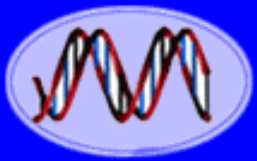
Cloning: Ethical Issues  
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# The Major “DONT’ S”

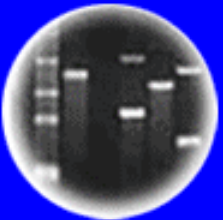
- Stand in One Place of Be a Statute Use Movement to Keep Your Audience’s Attention -- This is CRITICAL!
- Have “Parkinson’s Disease” When You Use the Pointer -- Or Circles -- Point to What You Want to Emphasize and Keep the Pointer There!
- Talk With the Lights Off -- Use Lights to Keep Your Audience Alert and To Emphasize Points
- Read Your Slides or Look at Your Computer
- Use Notes (On Your Computer or Paper)
- Look Like You Are Going to the Beach-  
Dress Appropriately



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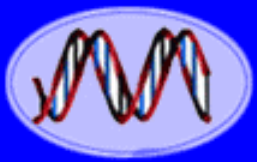
Cloning: Ethical Issues  
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# The Major “DOS”

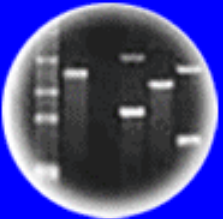
- Check Out the Room Beforehand
- Make Sure Your Computer Works and You Have Relevant Connectors
- Make a Copy of Your Talk on a Flash Drive and Bring It With You
- Be Prepared For Anything (For Example, Giving Your Talk Without Your Slides-Don't Read Your Slides or Use Computer as a Crutch!)
- Check, Check, and Re-Check Your Slides (Order, Spelling, etc.)
- Wash Your Face and Teeth
- Go to the Bathroom Before Your Talk (Being Nervous is NORMAL!!! If You are Not Nervous, You Haven't Prepared Enough!!)



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## Out of Body Experience

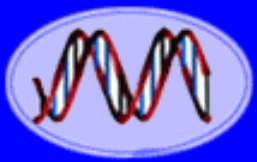
•

• Live With Your Talk

- Anticipate Each Slide, Word, and Movement  
-- It's NOT Spontaneous -- It Only Looks  
That Way

• No Notes, Be Natural

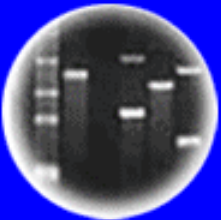
- Write Your Entire Talk Out Beforehand-  
Like a Script For a Movie or a Play



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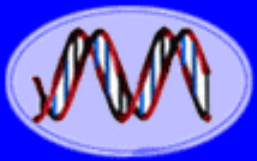


Cloning: Ethical Issues  
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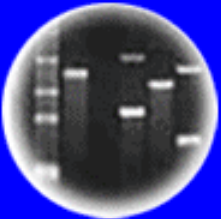
## Using Hands & Body Language



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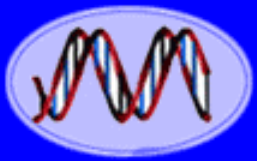
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# Answering Questions

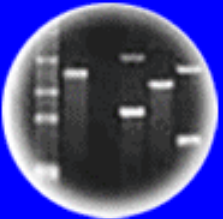
## The Talk Killer!!



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# PRACTICE

•

• Practice

• Practice

• Practice

• A TALK Reflects Upon YOU-the Quality of Your Work, How You Think, How You Present Yourself, & OPENS DOORS

• There's No Excuse For Anything Less Than EXCELLENCE!!