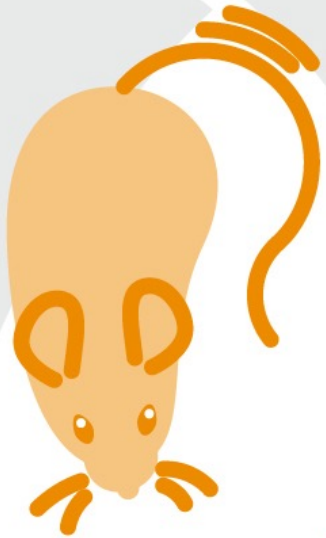
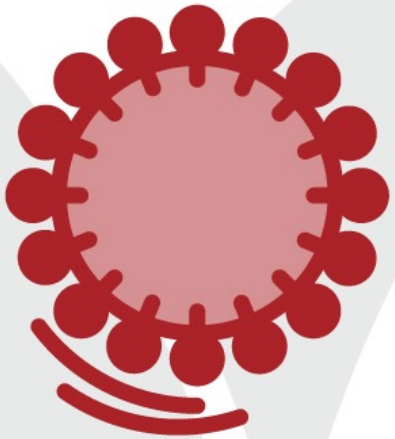
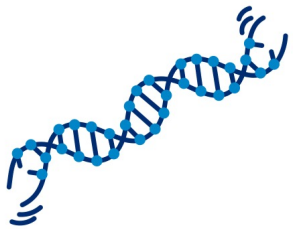






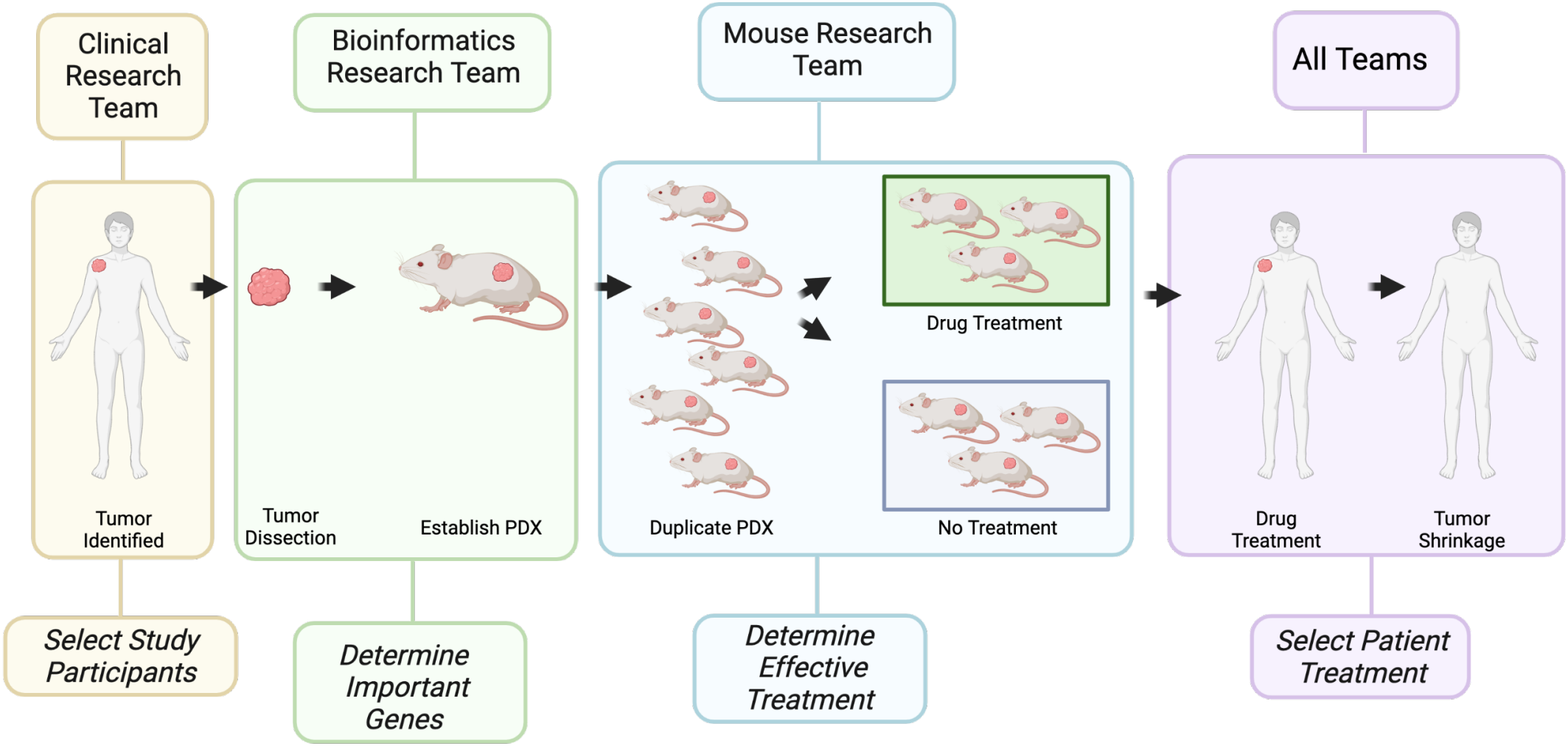
THE JACKSON LABORATORY

OPEN HOUSE

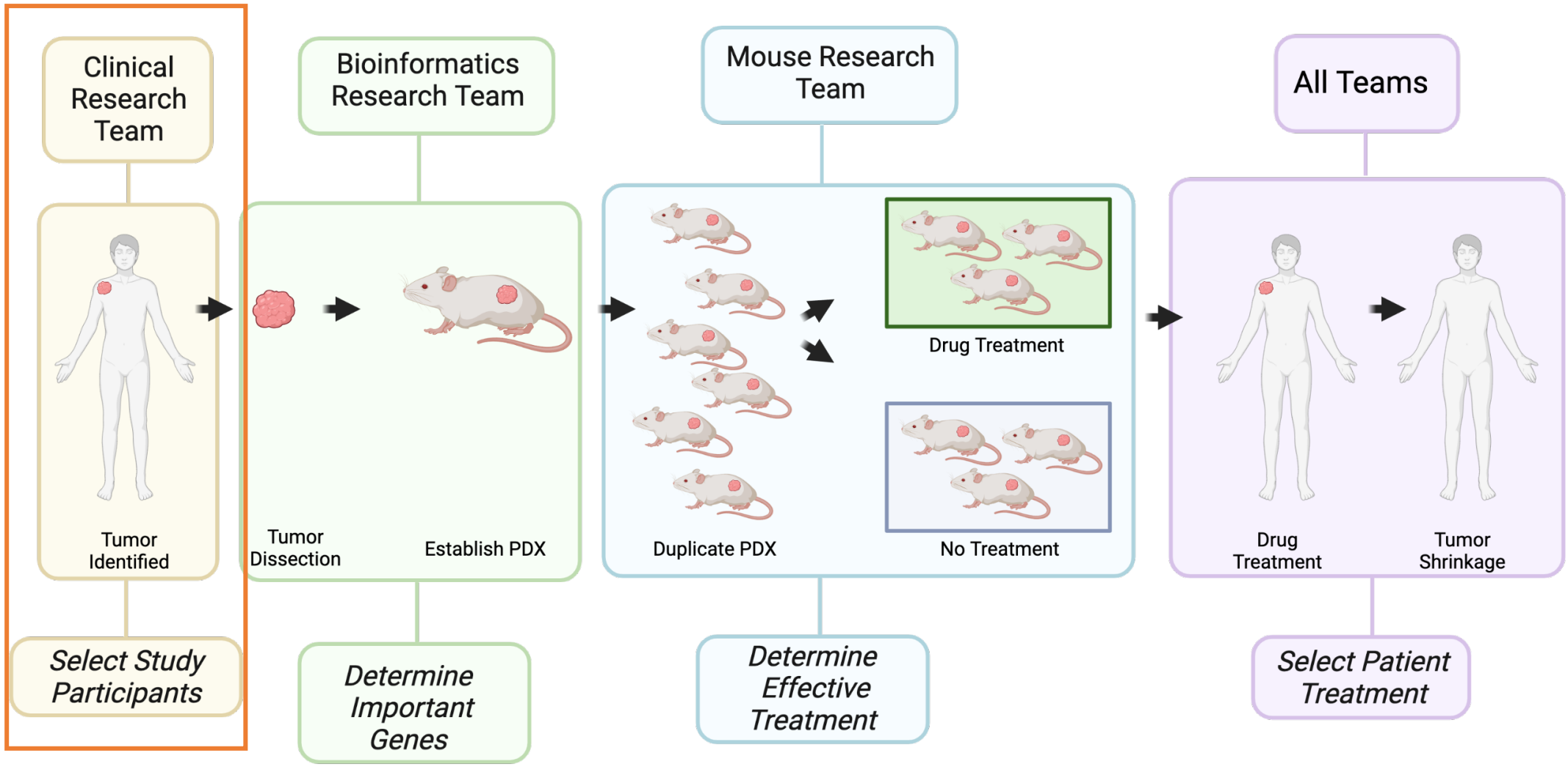
Research Results

- ✓ Each Research Team worked on their portion of the research project and completed specific tasks
- Now: Discuss each research lab group's findings and the overall study results
- Research question: Can we identify melanoma patients that will benefit from personalized treatment?

Using patient-derived xenograft (PDX) mouse models to target therapeutics



Clinical Research Team Conclusions



Clinical Research Team Conclusions

Clinical Research: Identifying Patients Who Fit Study Criteria

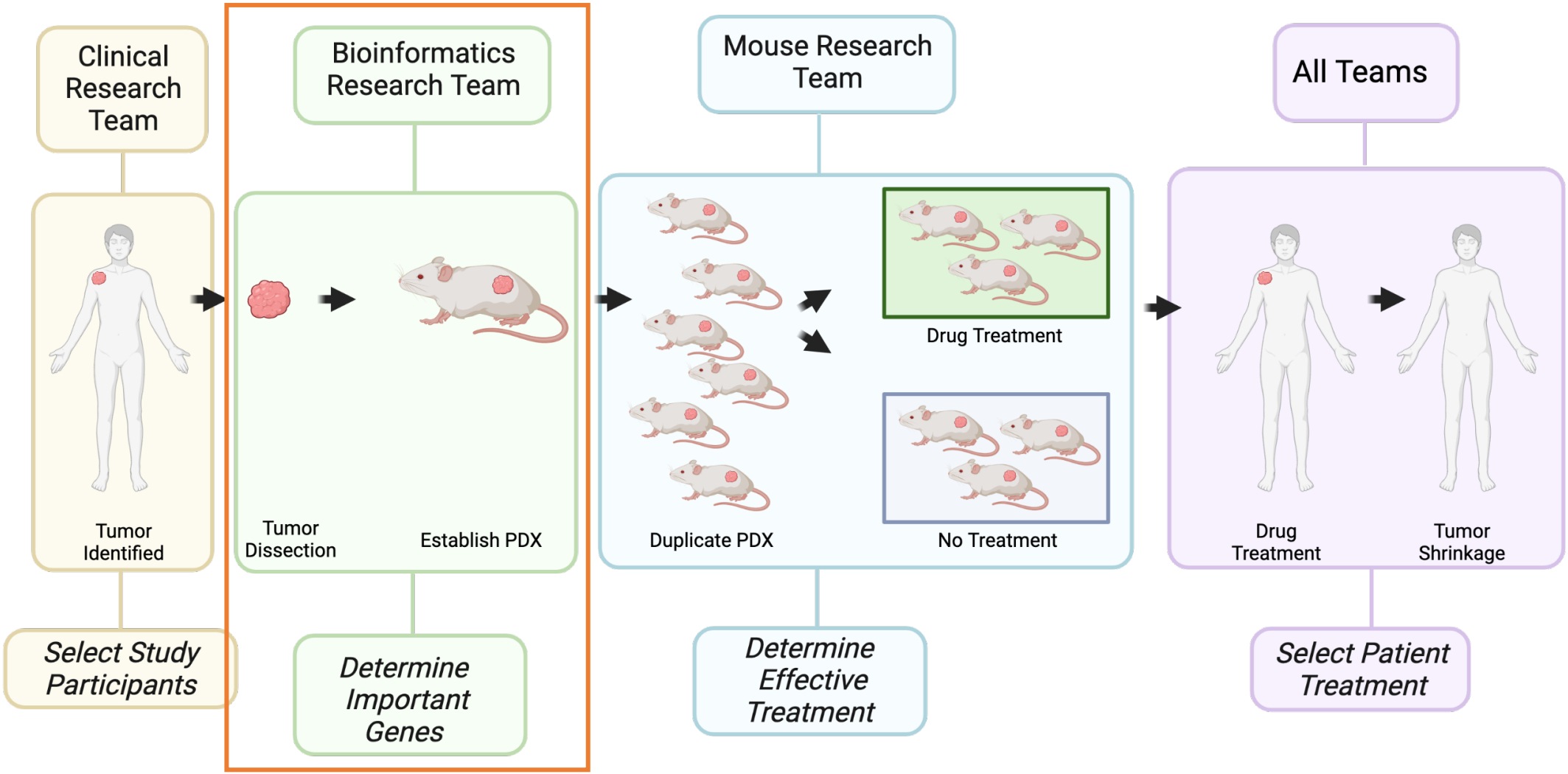
Patient data from Broad/Dana Farber 2012						
Sample number	**Patient ID**	**Biological Sex**	**Cancer type, stage**	**Tumor site**	**Age at diagnosis**	**Mutation count/load**
1	ME002	Female	Melanoma	Extremities	55	506
2	ME012	Female	Melanoma	Trunk	25	131
3	ME015	Female	Melanoma	Extremities	42	20
4	ME029	Female	Melanoma	Trunk	51	431
5	ME045	Female	Melanoma	Trunk	33	222
6	ME001	Male	Melanoma	Extremities	54	265
7	ME007	Male	Melanoma	Trunk	49	52
8	ME021	Male	Melanoma	Trunk	44	116
9	ME030	Male	Melanoma	Extremities	48	273
10	ME041	Male	Melanoma	Trunk	45	256

Clinical Research Team Conclusions

- **10 patients** met our melanoma study criteria

- **Unknowns:** we needed to know more about the patients' tumor genetics and how the drugs worked to be able to make better predictions

Bioinformatics Research Team Conclusions



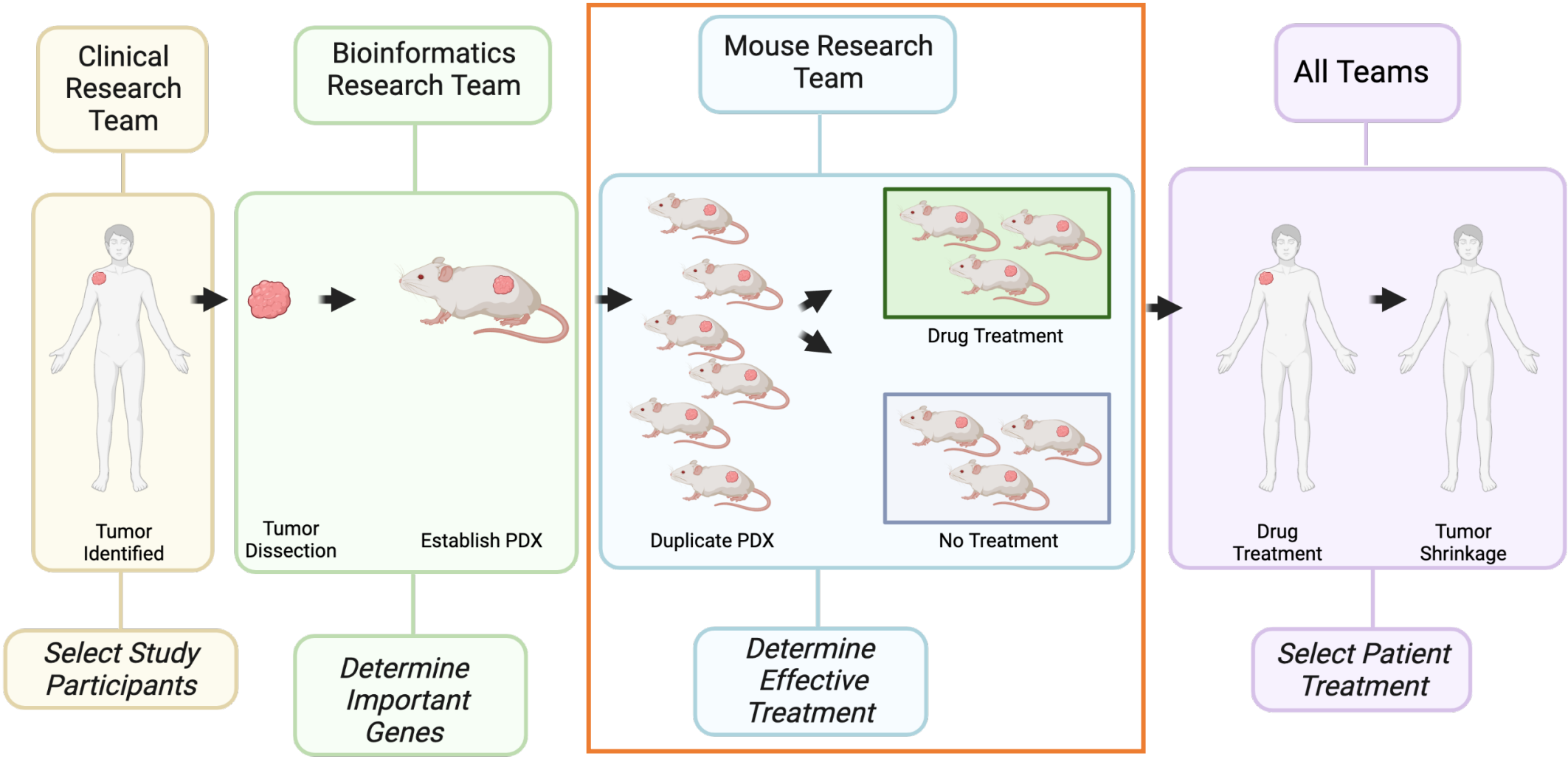
Bioinformatics Research Team Conclusions

Bioinformatics: Identifying Patients with Specific Driver Mutations		
	NRAS	**BRAF**
Patients with Driver Mutation	ME011	ME009
	ME018	ME012
	ME030	ME015
	ME035	ME020
	ME049	ME021
	ME001	ME024
	ME044	ME043
	ME002	ME045
	ME009	ME048
		ME050
		ME100L
		ME016

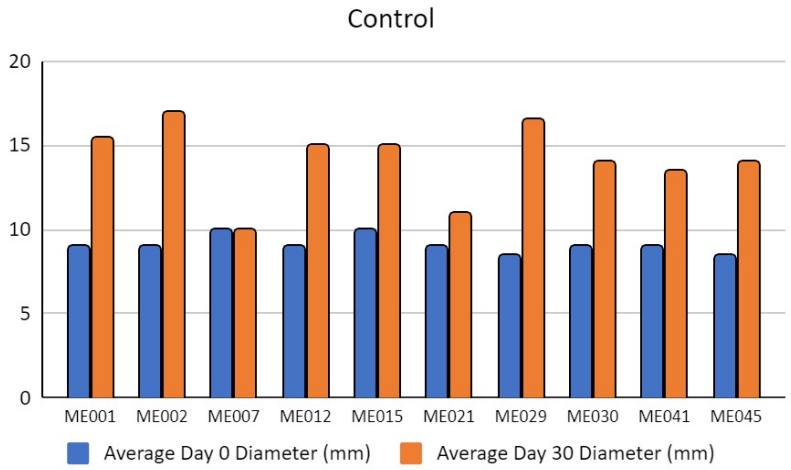
Bioinformatics Research Team Conclusions

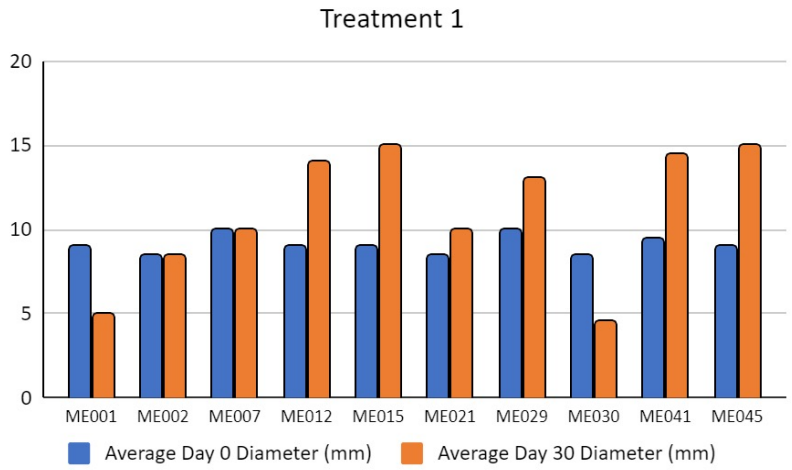
- **2 genes mutated** in patient tumors & expressed in skin
- **Unknowns:** we needed to know which patients were included in our study and how the drugs worked to be able to make better predictions

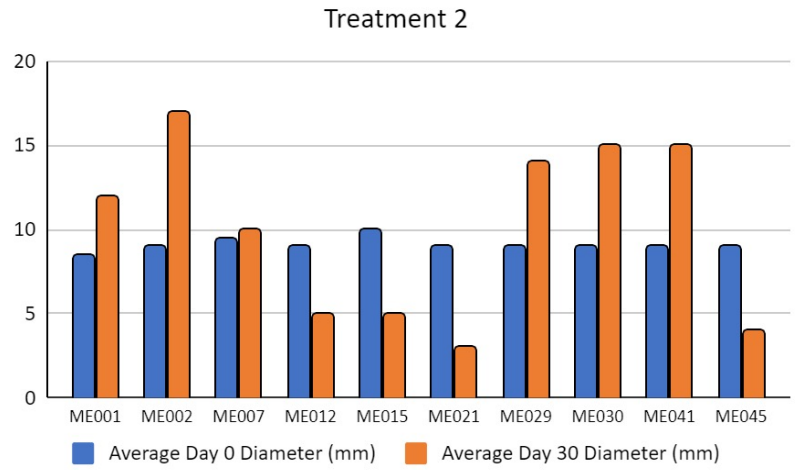
Mouse Research Team Conclusions



Mouse Research Team Conclusions







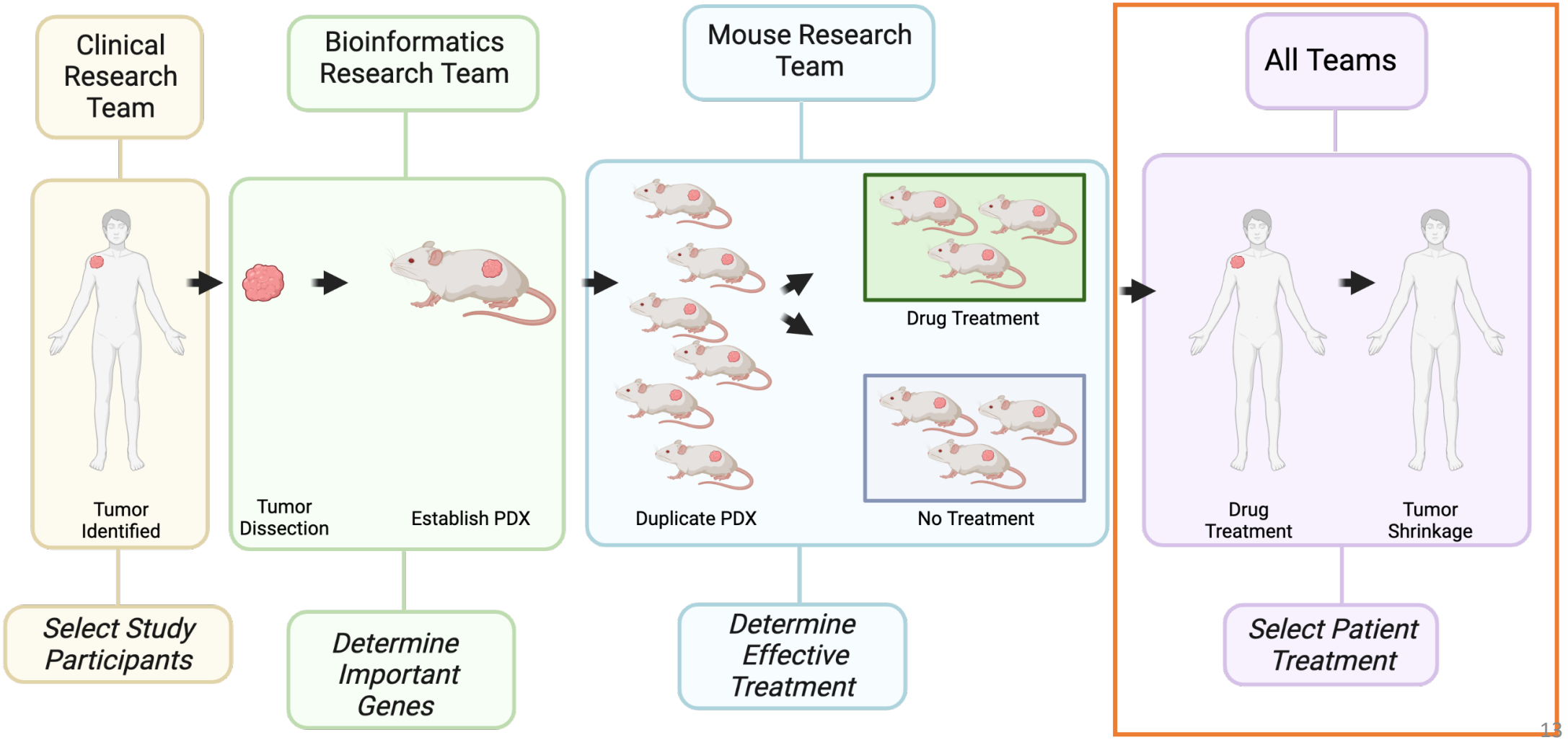
Mouse Research Conclusions		
	Treatment 1	**Treatment 2**
Patient Tumors Responded	ME001, ME002, ME030	ME012, ME015, ME021, ME045

Mouse Research Team Conclusions

- **Tumor shrinkage** in certain patient-derived xenograft (PDX) from specific treatments

- **Unknowns:** we needed to know the patients' information and tumor genetics to better understand why the drugs worked in some patients but not in others

All Teams Conclusions



All Teams Conclusions

CONCLUSIONS			
Patient	**Candidate driver mutation**	**PDX results**	**Candidate for treatment?**
ME002	NRAS	Treatment 1	Yes
ME012	BRAF	Treatment 2	Yes
ME015	BRAF	Treatment 2	Yes
ME029	None	No Response	No
ME045	BRAF	Treatment 2	Yes
ME001	NRAS	Treatment 1	Yes
ME007	None	No Response	No
ME021	BRAF	Treatment 2	Yes
ME030	NRAS	Treatment 1	Yes
ME041	None	No Response	No

What do you notice? Are there any patterns in the data?

All Teams Conclusions

- **Personalized medicine** uses genetics to identify effective treatments
  - 3 patients are candidates for Treatment 1
  - 4 patients are candidates for Treatment 2
  - 3 patients require further studies to find their personalized treatment
- **Unique skills** needed in each Research Team
- **Many career paths** in each Research Team

The research world needs YOU!