

**One patient.
One cancer.
One personal clinical trial.**

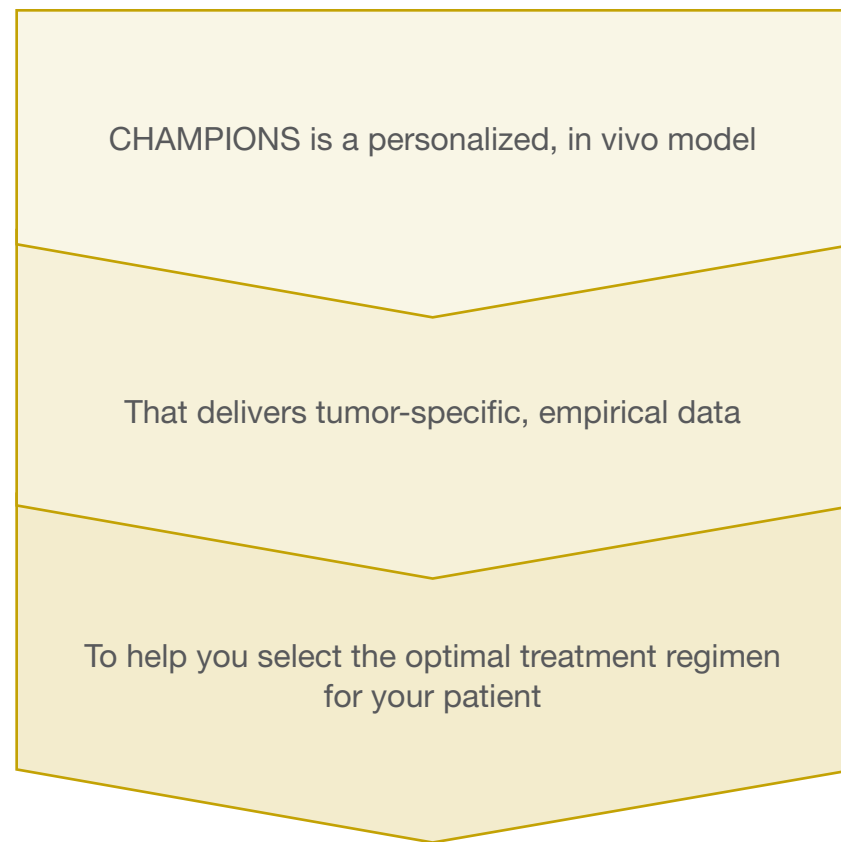
Tailor your patient's treatment with CHAMPIONS.



Predict and improve response with CHAMPIONS' unique personal clinical trial

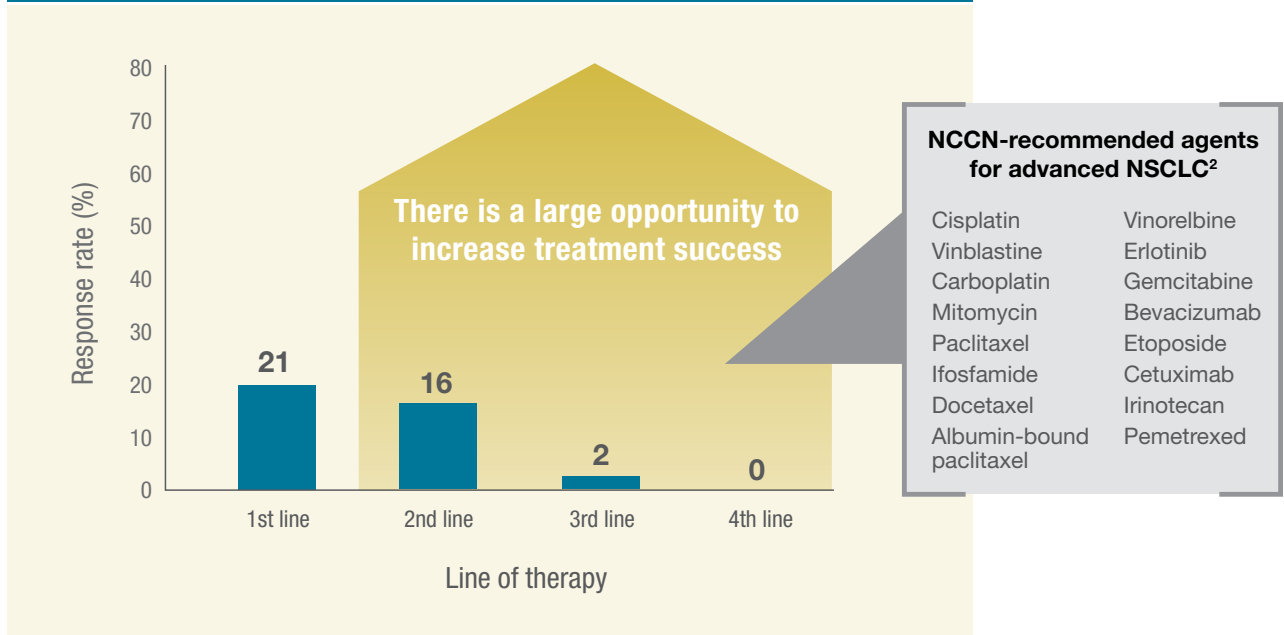
Introducing CHAMPIONS preclinical testing platform for personalized oncology. Our novel technology provides tumor-specific data to inform individualized treatment plans that reach beyond the standard of care. Our living tumor model predicts response to help you make the best treatment decisions for each of your patients.

At CHAMPIONS, we believe that every patient and every cancer is unique—and their treatment should be, too.



Standard treatment regimens are unsuccessful in a majority of patients

Likelihood of response by line of therapy in advanced NSCLC¹

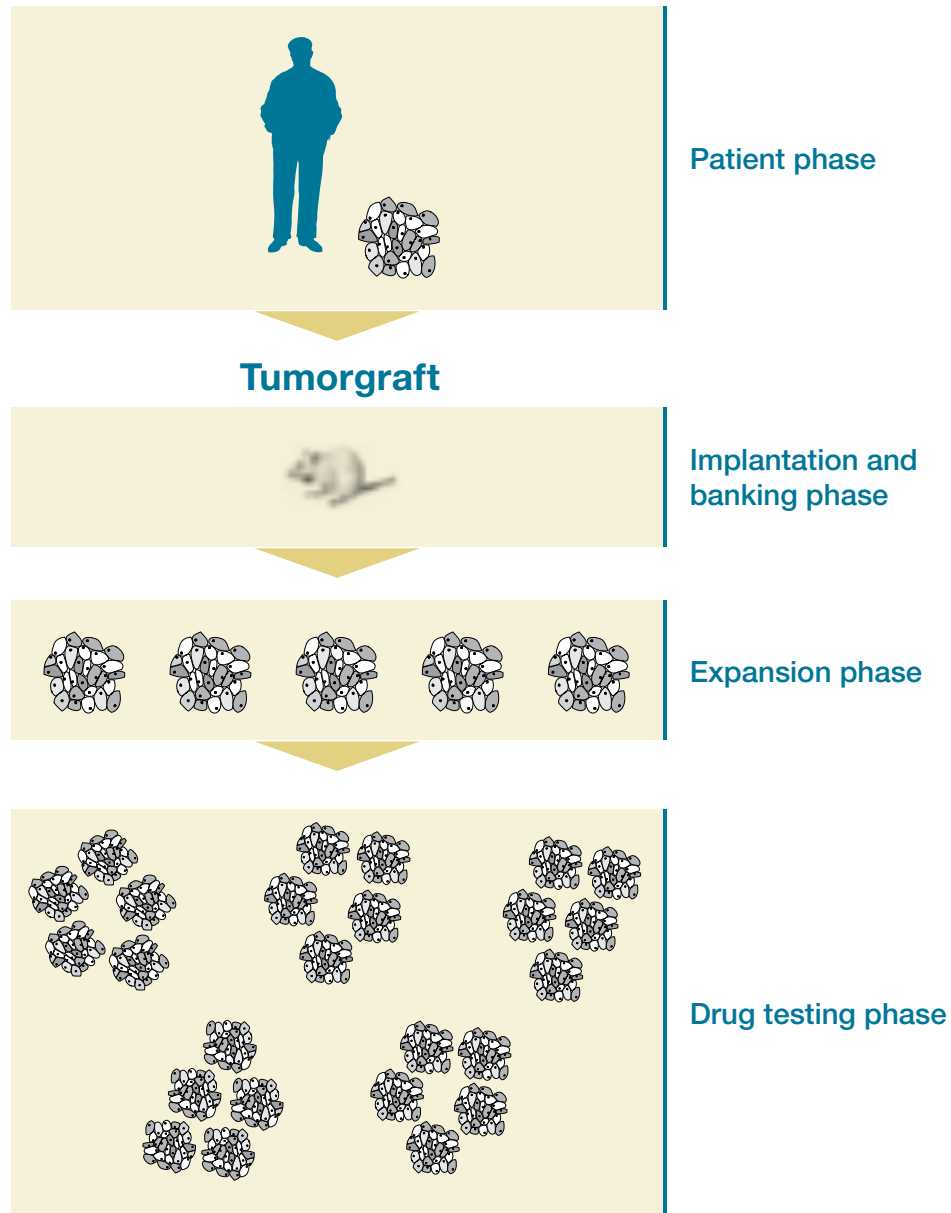


A retrospective analysis of 43 patients with advanced NSCLC who had received 3rd- or 4th-line chemotherapy after two prior regimens that included platinum and docetaxel given concurrently or sequentially.

NCCN = National Comprehensive Cancer Network; NSCLC = non-small-cell lung cancer.

- There is a lack of consensus surrounding current treatment guidelines

Introducing a living tumor model for predicting therapeutic efficacy



CHAMPIONS' unique Tumorgraft advantages

- Tumor fragments are transplanted directly from patient to mice
- Supporting stroma and cancer stem cells are maintained
- Drug activity is assessed in original tumor microenvironment

CHAMPIONS provides more information to help design a treatment plan³

	CHAMPIONS	Tissue assays	Short-term cultures
Assay technology			
In vivo model	YES	NO	NO
Preserves tumor microenvironment	YES	NO	NO
Preserves tissue heterogeneity	YES	NO	NO
Testing panel			
Physician designed	LIMITED	NO	YES
Single-agent chemotherapies	YES	YES	YES
Biologics	YES	LIMITED	LIMITED
Combination therapy	YES	LIMITED	LIMITED
Novel agents	YES	LIMITED	LIMITED
Data output			
Resistance data	YES	YES	YES
Response data	YES	LIMITED	LIMITED

CHAMPIONS is highly predictive

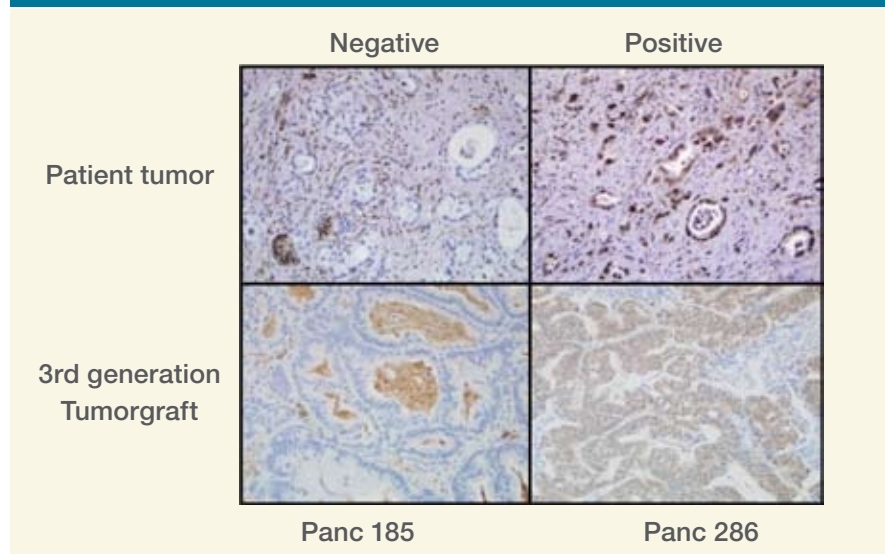
- Panel includes full spectrum of treatment options
- Physician is involved in selecting therapies for inclusion in panel

High degree of correlation between patient tumor and Tumorgraft

DNA gene mutation status ⁴		
Patient	KRAS	
	Patient tumor	3rd-generation Tumorgraft
Panc 163	GAT/wt	GAT/wt
Panc 185	GAT/wt	GAT/wt
Panc 194	GTT/wt	GTT/wt
Panc 198	GAT/wt	GAT/wt
Panc 215	GAT/wt	GAT/wt
Panc 219	GAT/wt	GAT/wt
Panc 253	GAT/wt	GAT/wt
Panc 265	GAT/wt	GAT/wt
Panc 281	GTT/wt	GTT/GTT
Panc 286	GAT/wt	GAT/wt
Panc 287	wt/wt	wt/wt
Panc 294	GTT/wt	GTT/GTT

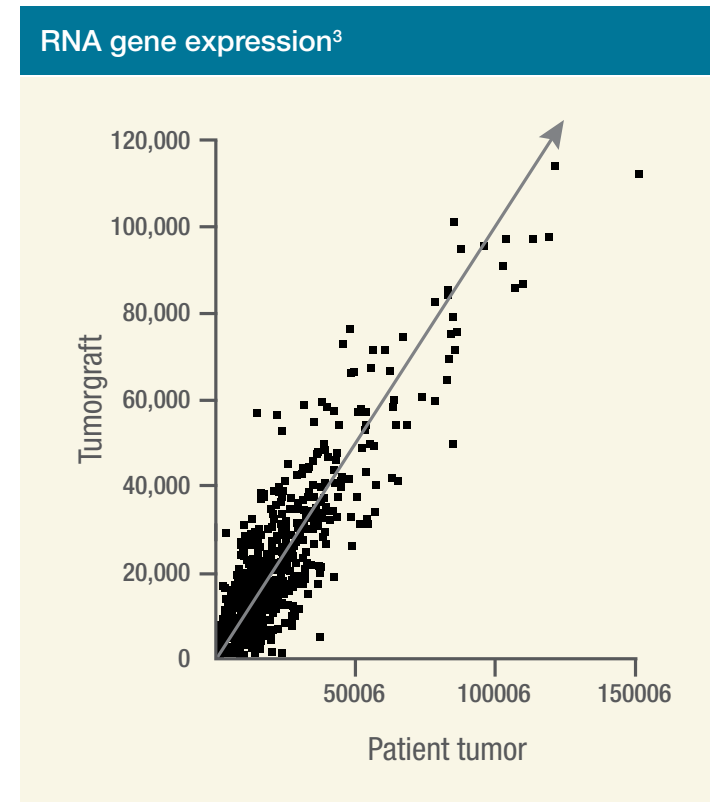
- KRAS mutations were identical between Tumorgraft and patient tumor in 10 of 12 cases
- TS, RRM1, and RRM2 also showed statistically significant correlation

Protein expression and stability⁴



- High degree of concordance between DPC4 (*Smad4*) protein expression by immunohistochemistry

94% correlation in tumor gene expression



- 30,000 genes compared between Tumorgraft and tumor of head and neck cancer patient
- Correlation in standard xenografts is 20%

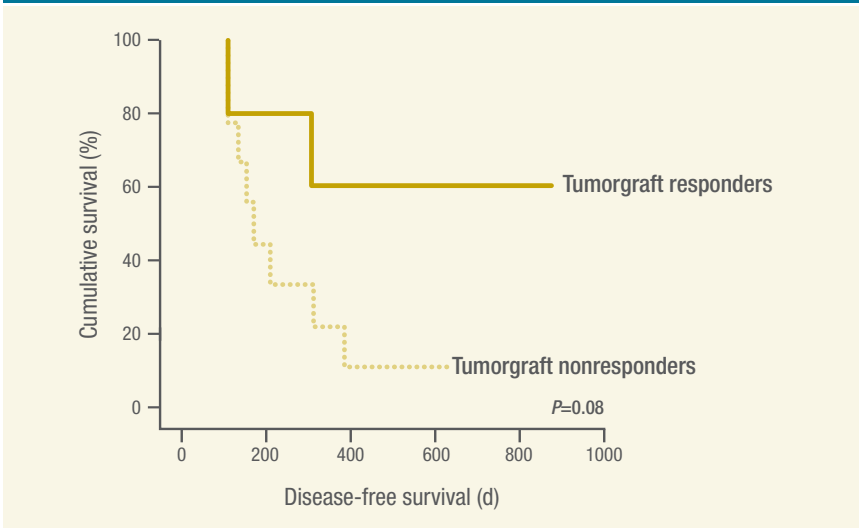
Tumorgraft cell profiles correlate highly with patient tumors

- DNA gene mutations
- RNA gene expression
- Protein expression

In a Phase II study, Tumorgraft data mirrored disease-free survival outcomes⁵

- Phase II study in pancreatic ductal adenocarcinoma
- 85 patients eligible ⇒ 42 engrafted and reached treatment phase ⇒ 26 clinically treated with gemcitabine

Disease-free survival rates grouped by Tumorgraft response



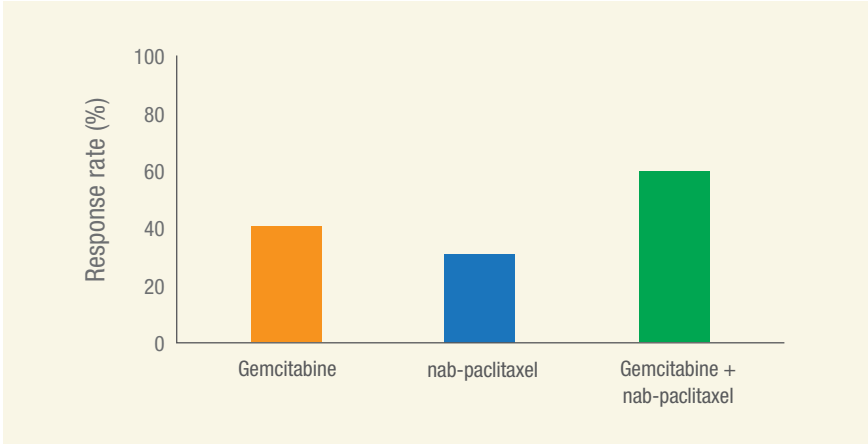
- Disease-free survival was nearly four-fold in patients predicted to be sensitive to gemcitabine therapy per Tumorgraft data vs Tumorgraft nonresponders (>800 vs 206 days, $P=0.08$)

CHAMPIONS data mirrored clinical outcomes

- Early-phase development provided proof of concept for in vivo predictive oncotherapy
- Early experience cases have proven application in a real-world setting

CHAMPIONS advances drug development with predictive technology³

Tumorgraft response for gemcitabine vs combination therapy in a pharmaceutical preclinical trial



Clinical outcomes

	Response rate (%)	Overall survival
Gemcitabine	~10	~5 months
Gemcitabine + nab-paclitaxel	40	10.8 months

- Preclinical results in Tumorgrafts predicted response in Phase II clinical data, potentially shaving years off the drug development process
- Currently, Champions Oncology partners with the following companies:
 - Alfacell Corporation
 - Centocor Ortho Biotech Inc.
 - Cephalon, Inc.
 - Concordia Pharmaceuticals, Inc.
 - ImClone Systems
 - Janssen Pharmaceutica
 - Morphotek Inc. (subsidiary of Eisai, Inc.)
 - 11 other biopharma companies (confidential)

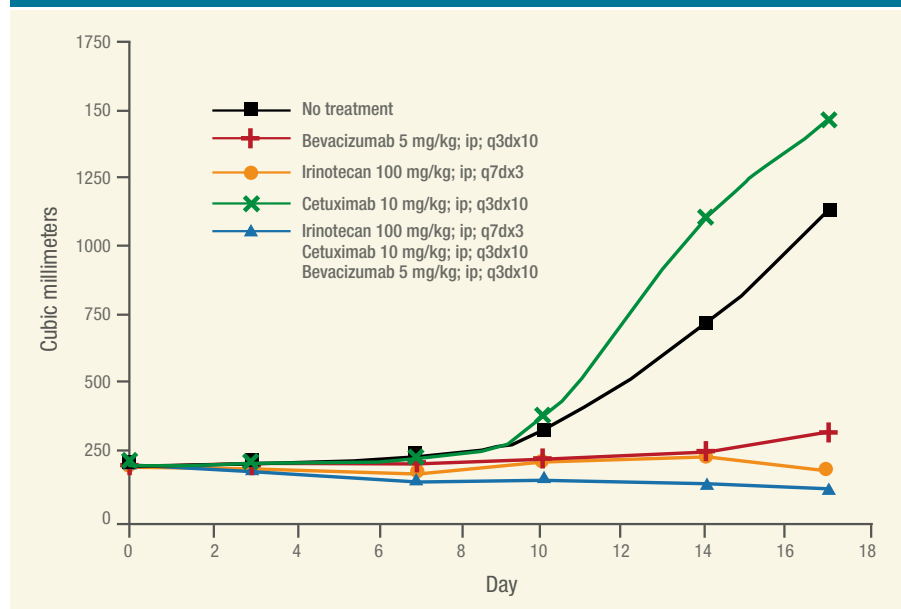
CHAMPIONS has already changed industry paradigms

- The pharmaceutical industry is evolving clinical trial programs to utilize Tumorgraft technology for predicting drug success
- CHAMPIONS data are integral to the decision-making process

Tumorgraft case study: 56-year-old male with metastatic gastroesophageal cancer who had 2 prior regimens³

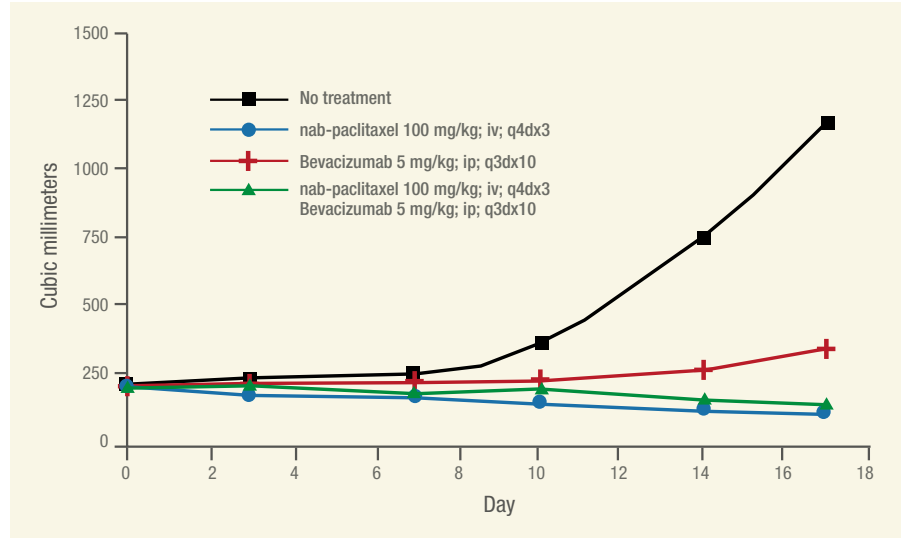
TUMORGRAFT RESPONSE TO DRUG TESTING INFORMED TREATMENT DECISIONS

First round of drug testing (3rd line of treatment)



- Irinotecan/cetuximab/bevacizumab combination therapy selected for 3rd-line treatment

Second round of drug testing (4th line of treatment)

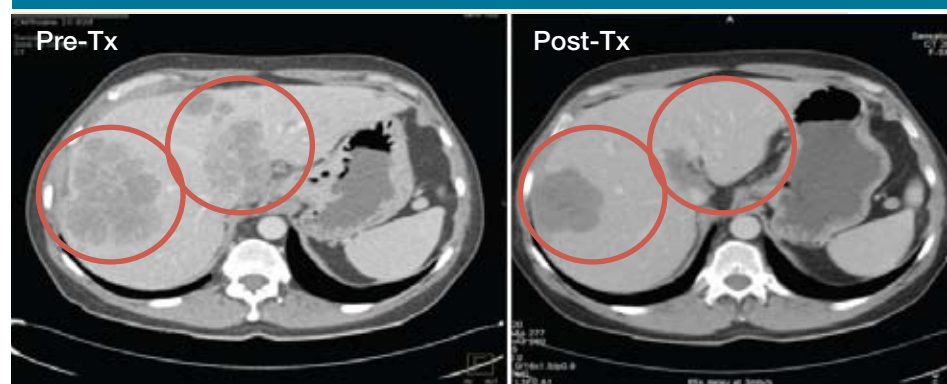


- nab-paclitaxel/bevacizumab combination therapy selected for 4th-line treatment

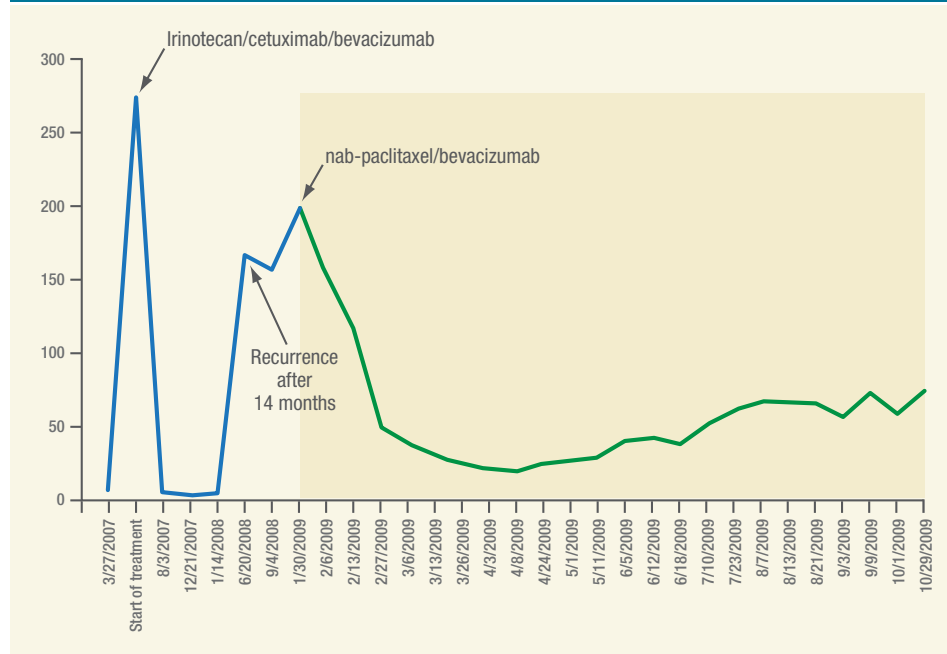
- Third round of drug testing demonstrated additional activity with ixabepilone

PATIENT RESPONDED TO BOTH LINES OF THERAPY WITH NORMALIZED CEA LEVELS

Response to 3rd-line treatment for liver metastases



CEA level results following 3rd- and 4th-line treatment

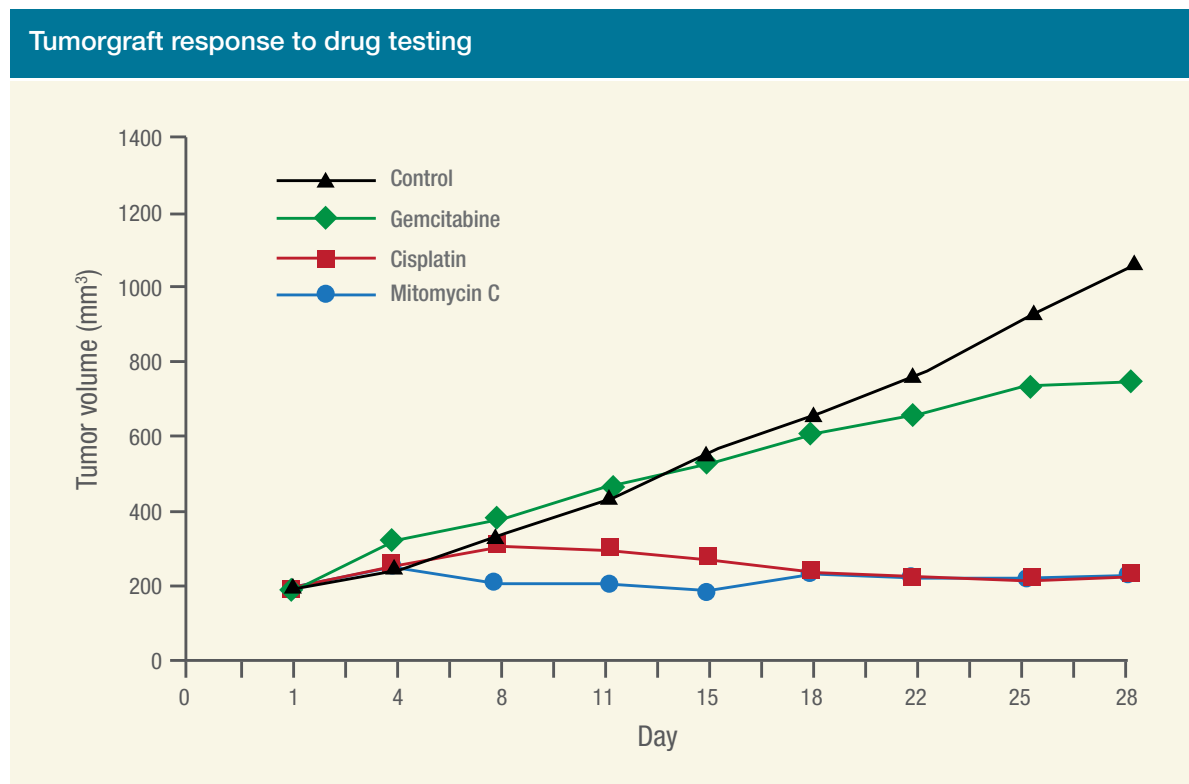


Case study conclusions

- Patient responded to 4 courses of CHAMPIONS-guided therapy
- Survival extended 32 months in late-line therapy

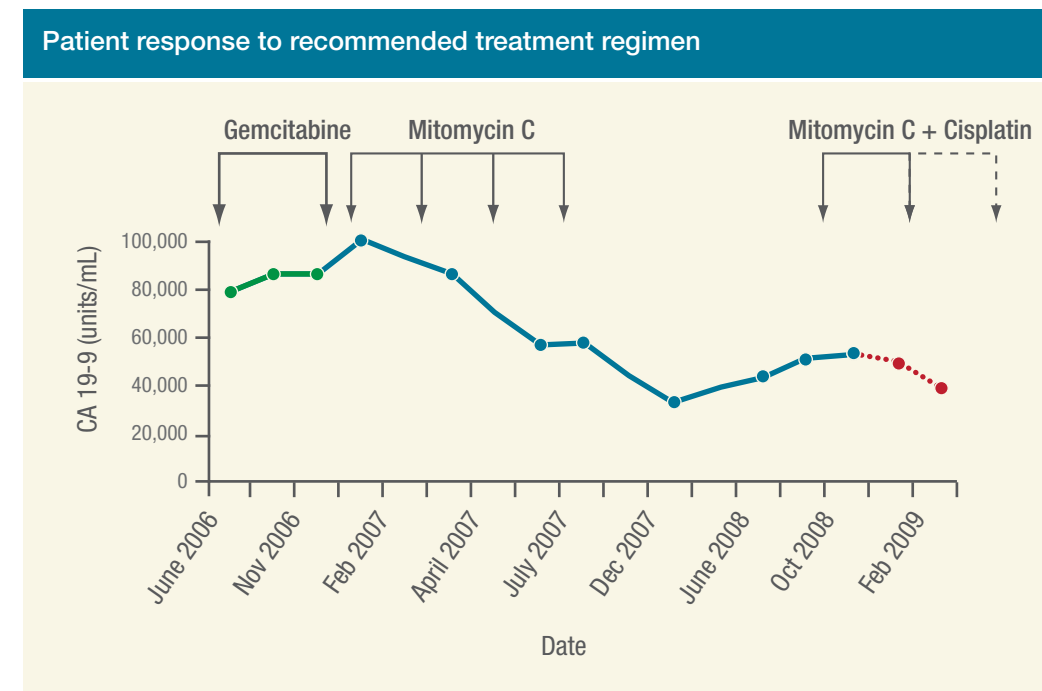
Tumorgraft case study: 63-year-old male diagnosed with stage IV pancreatic cancer, no prior therapies⁶

TUMORGRAFT RESPONSE TO DRUG TESTING INFORMED TREATMENT DECISIONS



- Treated with single-agent gemcitabine during testing process
- Developed significant disease progression after 4 months
- Tumorgraft indicated susceptibility to mitomycin C and cisplatin

PATIENT RESPONDED TO CHANGE OF COURSE IN THERAPY BASED ON TUMORGRAFT DATA



- Response with mitomycin C maintained for 22 months
- After increase in CA 19-9 and development of a new lung module, the patient was treated with 2 additional cycles of mitomycin C and 3 cycles of cisplatin
- Patient remains asymptomatic as of last follow-up (3 years postresection)
- Mutation identified in the *PALB2* gene explains the observed sensitivity to DNA-damaging agents

Case study conclusions

- Patient responded to recommended therapy and extended survival to 3 years past surgical resection
- Evaluation of therapies goes beyond identifying resistance to predicting levels of response

Depend on CHAMPIONS' accuracy for clinical decisions³

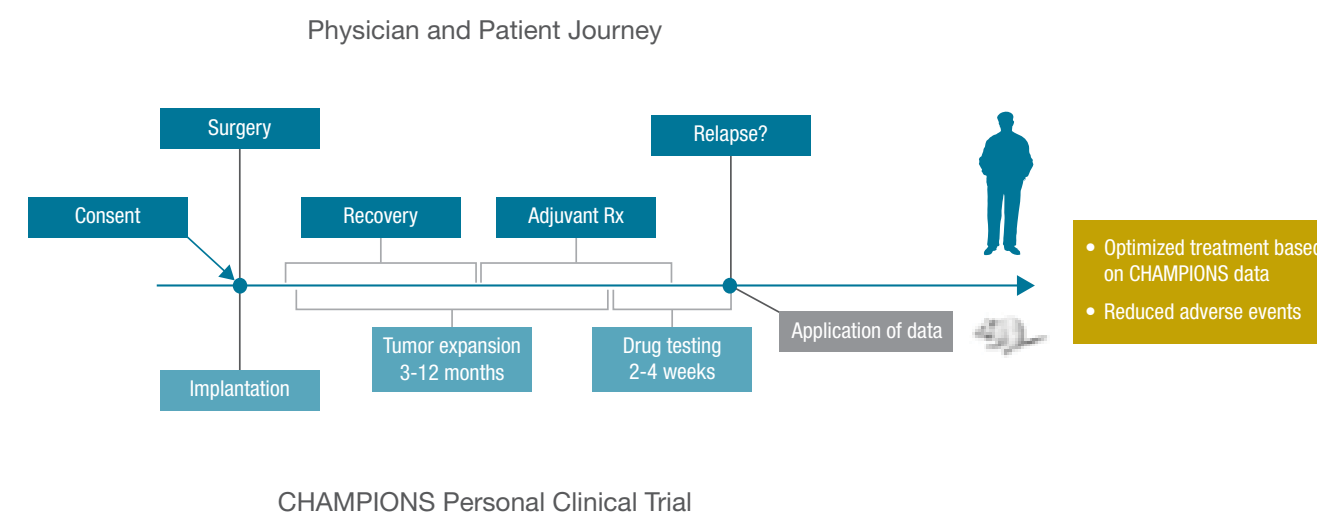
Summary of personalized tumor graft studies: first implantation series				
Cases	Predicted clinical response	Predicted clinical failure	Treatment course and duration of response	
Lung	+ / +	- / -	3rd line	>9 months
			4th line	6 months
Leiomyosarcoma	+ / +	- / -	4th line	>9 months
			5th line	6 months
Mesenchymal chondrosarcoma	+ / +	-	3rd line	9 months
			4th line	9 months
Gastroesophageal cancer	+ / + / + / +	Not tested	3rd line	14 months
			4th line	8 months
			5th line	6 months
			6th line	4 months
Colorectal cancer	+ / +	Not tested	3rd line	15 months
			4th line	6 months
Pancreatic cancer	+ / +	-	2nd line	22 months
			3rd line	14 months
Rhabdomyosarcoma	+	Not tested	3rd line	6 months
Breast cancer	+	Not tested	Expired	Expired
Myoepithelioma	No agents demonstrated activity	- / -	NA	NA
Summary	16/16	8/8	2nd-6th line	

*+ = clinical response was predicted; *- = clinical failure was predicted.

CHAMPIONS empirical data advantages

- 100% correlation in sensitivity and specificity of CHAMPIONS data and clinical response
- Consistent performance in 2nd-6th lines of therapy

Introducing a new treatment experience for you and your patient



1. Tumor implantation and banking
 - Tumor implanted within hours of surgery
 - Living Tumorgrafts maintained for future therapy testing
2. Tumor expansion
 - Growth of tumor in immune-deficient mice
3. Drug testing
4. Application of data to optimize treatment regimen

References: 1. Massarelli E, Andre F, Liu DD, et al. A retrospective analysis of the outcome of patients who have received two prior chemotherapy regimens including platinum and docetaxel for recurrent non-small-cell lung cancer. *Lung Cancer*. 2003;39:55-61. 2. NCCN Guidelines in Oncology, v2.2011. Non-Small Cell Lung Cancer. December 2010. http://www.nccn.org/professionals/physician_gls/f_guidelines.asp. Accessed December 16, 2010. 3. Data on file. Champions Oncology. 4. Rubio-Viqueira B, Jimeno A, Cusatis G, et al. An *in vivo* platform for translational drug development in pancreatic cancer. *Clin Cancer Res*. 2006;12:4652-4661. 5. Hidalgo M, Garrido-Laguna I, Uson M, et al. Activity of gemcitabine in direct patient derived xenografts predicts clinical outcome: validation of an *in vivo* model for drug development. Presented at 45th Annual Meeting of the American Society of Clinical Oncology; May 29-June 2, 2009; Orlando, FL. 6. Villarroel MC, Rajeshkumar NV, Garrido-Laguna I, et al. Personalizing cancer treatment in the age of global genomic analyses: *PALB2* gene mutations and the response to DNA damaging agents in pancreatic cancer. In press.

CHAMPIONS physician and patient advantages

- Improved outcomes with better treatment decisions
- Reduced suffering by avoiding ineffective therapies

One patient

CHAMPIONS changes the current treatment paradigm to focus on the individual patient

- A treatment plan that is unique to your patient's tumor
- More time and improved quality of life for your patient

One cancer

The first and only living tumor model for predictive oncotherapy

- Whole tumor transplanted directly from patient to mice
- Drug behavior is assessed in original tumor microenvironment
- Tumor cell profile is preserved from patient phase to testing phase

One personal clinical trial

Predict and improve response with CHAMPIONS' unique personal clinical trial

- Delivers tumor-specific, empirical data
- Helps you select the optimal treatment regimen for your patient

Tailor your patient's treatment with CHAMPIONS

For more information, please visit
www.personalizedcancertreatment.com