

Sydney Shuff

Petter Award

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The role of Proline metabolism pathway in drug resistant lung cancer

I am investigating the altered role Proline metabolism in the development of resistance to a first-line therapeutic for lung cancer.

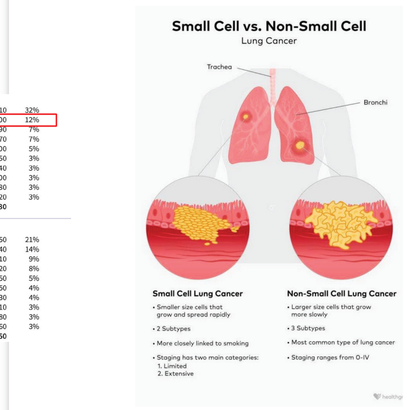


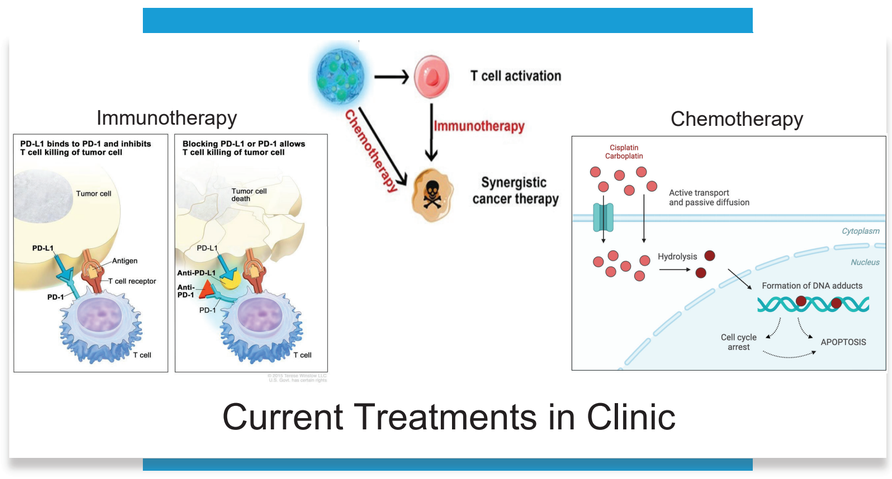
What is cancer?

Why lung cancer?

Estimated New Cases	Male			Female		
	Prostate	333,830	31%	Breast	321,910	32%
	Lung & bronchus	110,910	10%	Lung & bronchus	118,500	12%
	Colon & rectum	84,160	8%	Colon & rectum	74,690	7%
	Melanoma of the skin	65,400	6%	Uterine corpus	68,270	7%
	Urinary bladder	64,730	6%	Melanoma of the skin	46,600	5%
	Kidney & renal pelvis	50,770	5%	Non-Hodgkin lymphoma	35,550	3%
	Non-Hodgkin lymphoma	43,770	4%	Pancreas	32,340	3%
	Oral cavity & pharynx	43,070	4%	Thyroid	32,090	3%
	Leukemia	39,070	4%	Kidney & renal pelvis	29,680	3%
	Pancreas	35,190	3%	Leukemia	28,720	3%
	All sites	**1,094,070**		**All sites**	**1,020,780**	

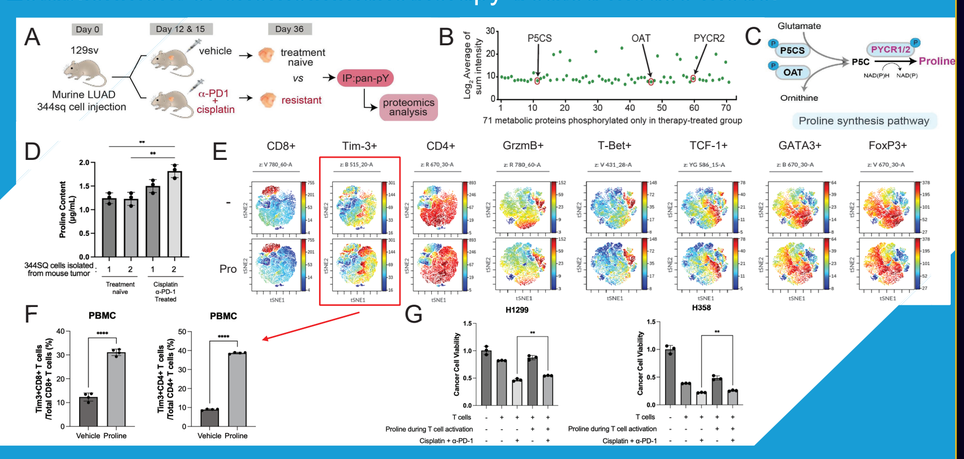
Estimated Deaths	Male			Female		
	Lung & bronchus	63,040	19%	Lung & bronchus	61,950	21%
	Prostate	36,320	11%	Breast	42,140	14%
	Colon & rectum	30,110	9%	Pancreas	25,510	9%
	Pancreas	27,230	8%	Colon & rectum	25,120	8%
	Liver & intrahepatic bile duct	19,650	6%	Uterine corpus	14,450	5%
	Leukemia	13,900	4%	Ovary	12,450	4%
	Esophagus	12,940	4%	Liver & intrahepatic bile duct	11,330	4%
	Urinary bladder	12,640	4%	Leukemia	10,010	3%
	Non-Hodgkin lymphoma	11,710	4%	Brain & other nervous system	8,380	3%
	Kidney & renal pelvis	10,200	3%	Non-Hodgkin lymphoma	8,250	3%
	All sites	**327,290**		**All sites**	**298,150**	





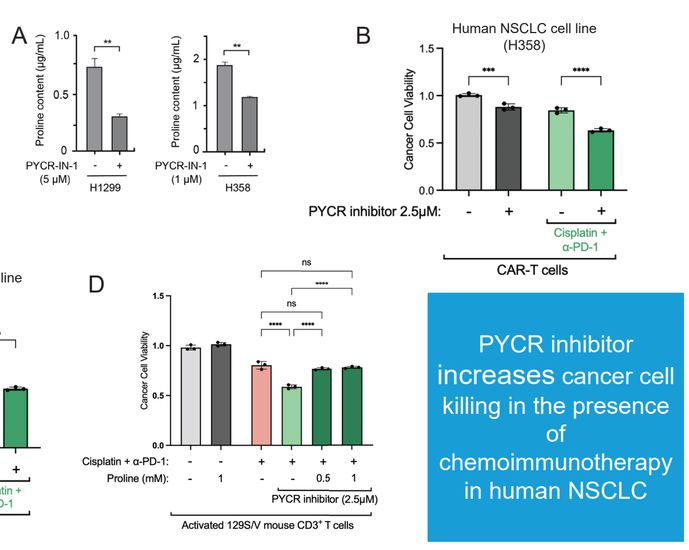
Current Treatments in Clinic

Establishment of chemoimmunotherapy treated mouse model

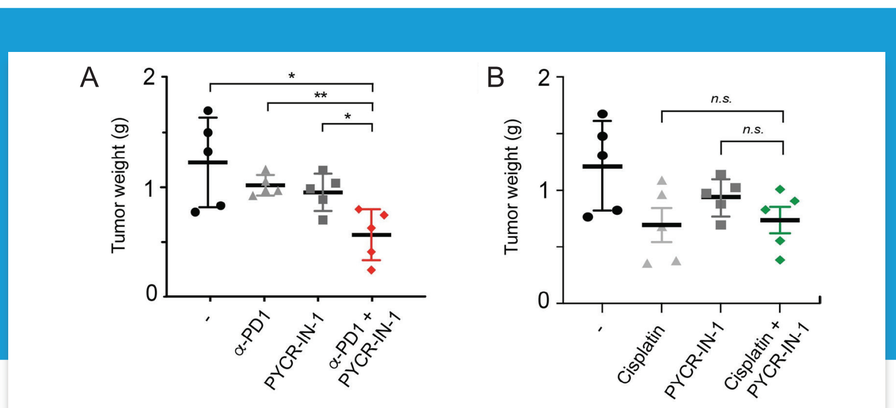


The role of Proline in chemoimmunotherapy treatment

PYCR inhibitor decreases proline production



PYCR inhibitor increases cancer cell killing in the presence of chemoimmunotherapy in human NSCLC



PYCR inhibitor enhances anti-PD-1 response in model organism.

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