

Facilitating Collaborations to Develop Combination Investigational Cancer Therapies: A National Cancer Policy Forum Workshop

Examples of Combined Immuno-Oncologic Interventions

Renzo Canetta, MD

Vice President, Oncology Global Clinical Research
Bristol-Myers Squibb, Wallingford, CT, USA

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Advising the nation/Improving health

1. Aldesleukin (interleukin-2) and LAK cells (lymphokine activated killer cells) in Patients with Metastatic Cancer

	No.	CR	PR	MR	CR+PR	Disease Control
IL-2 alone	46	1	5	1	13%	15%
IL-2 + LAK cells	106	8	15	10	22%	32%

2. Aldesleukin (interleukin-2) and gp100 peptide vaccine in Advanced Melanoma

	No.	Endpoint
IL-2 alone	94	Best Objective Response Rate (BORR)
IL-2 + gp100 vaccine + Montanide	91	

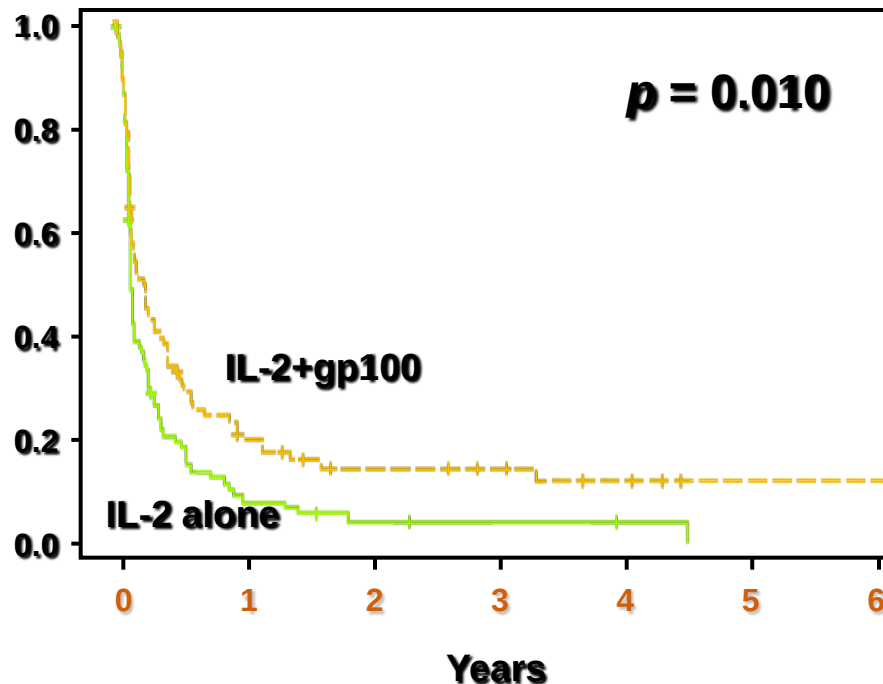
IL-2 *plus* gp100 versus IL-2

(Study in Advanced Melanoma N=185)

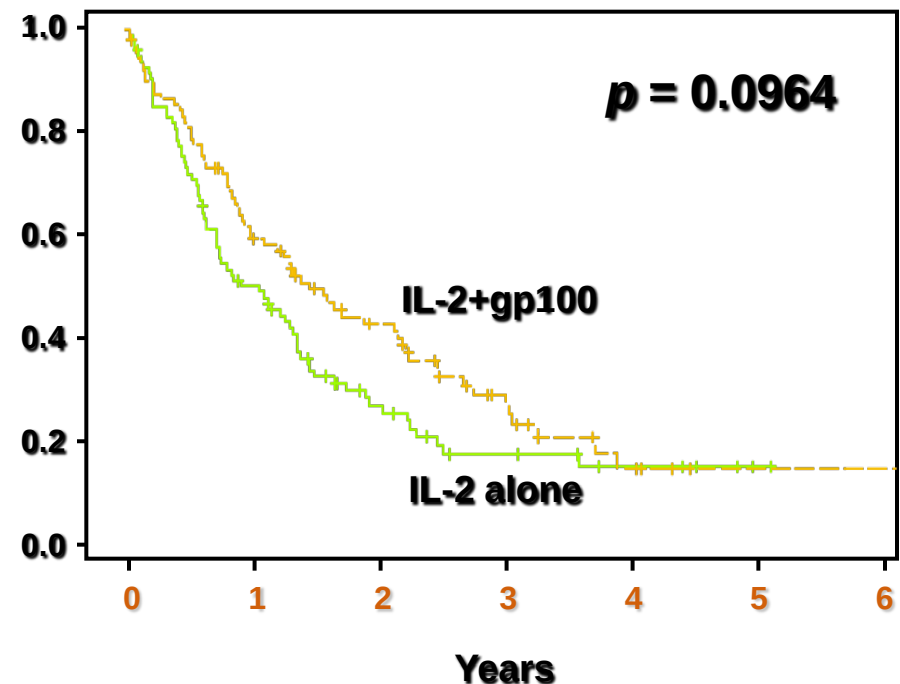
Primary endpoint (BORR):

22.1% (IL-2 plus gp100) vs. 9.7% (IL-2) $p=0.0223$

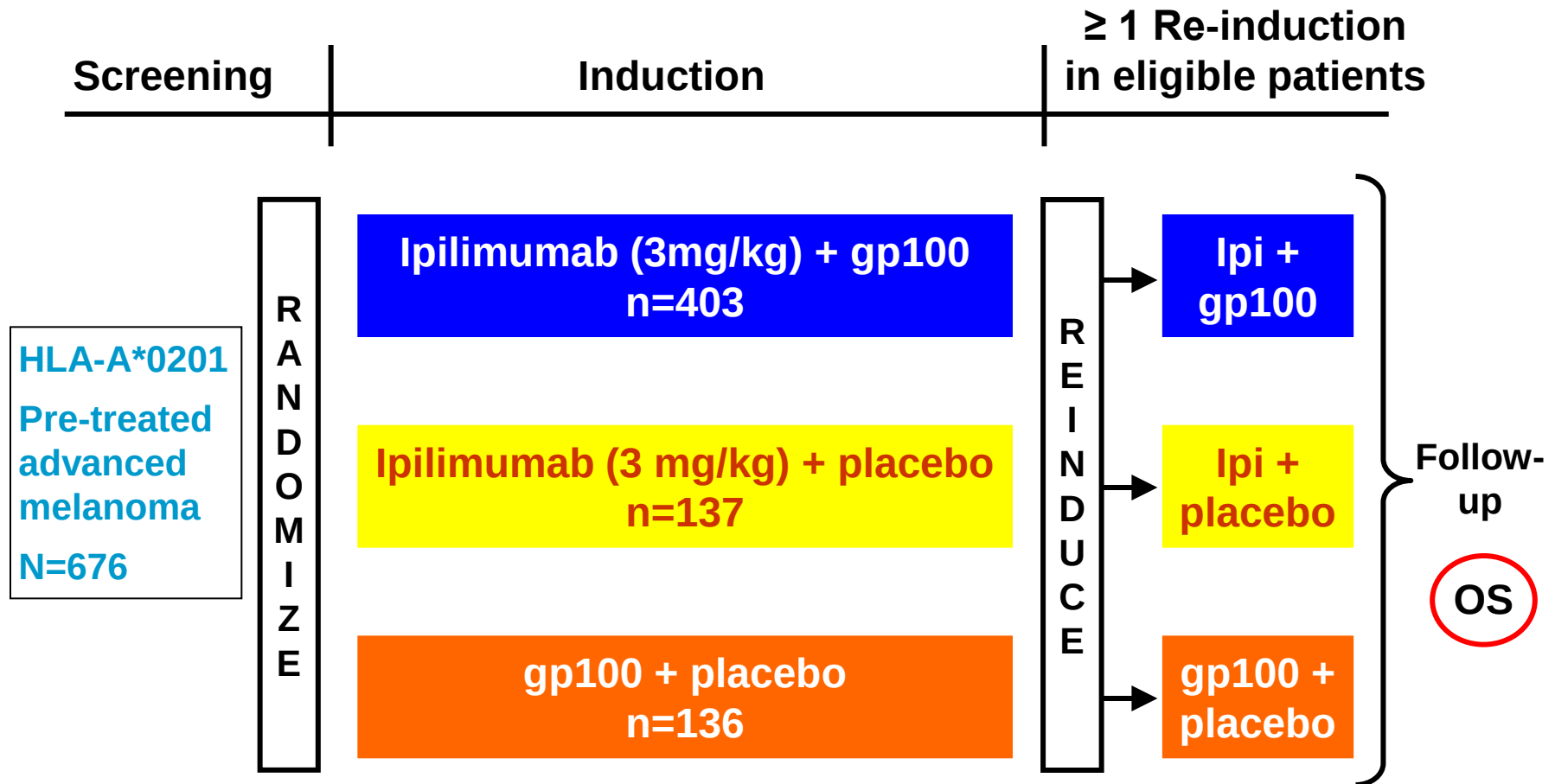
Progression-free Survival



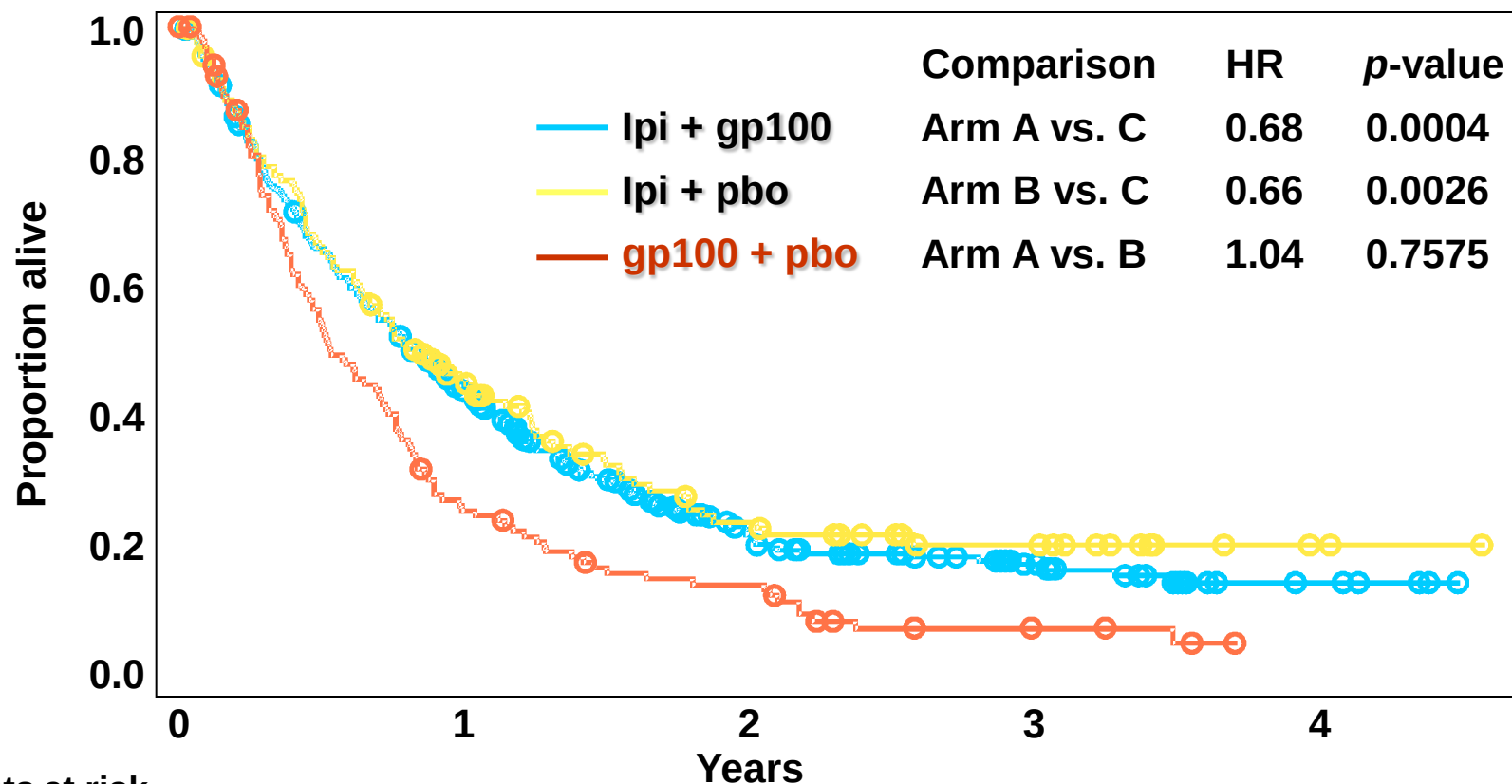
Overall Survival



3. gp100 peptide vaccine and ipilimumab (anti-CTLA4 MoAb) in Pretreated, Advanced Melanoma



Kaplan-Meier Analysis of Survival



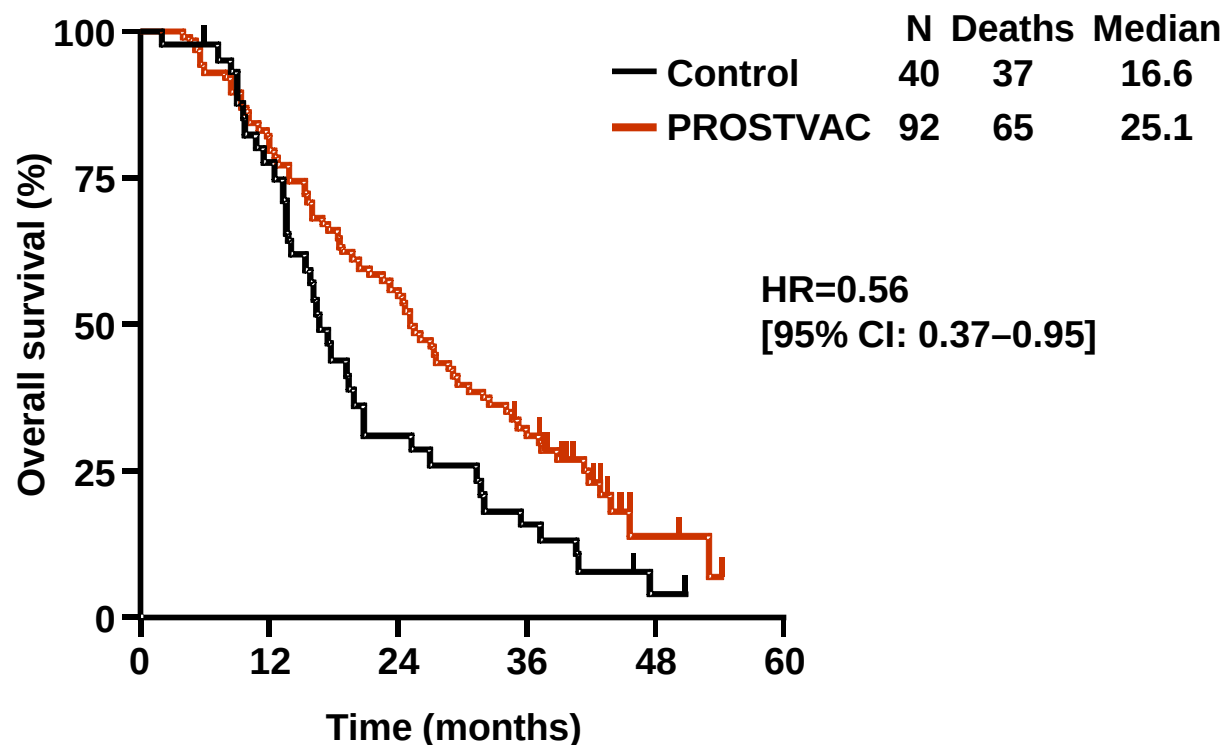
Patients at risk

lpi + gp100	403	297	223	163	115	81	54	42	33	24	17	7	6	4	0
lpi + pbo	137	106	79	56	38	30	24	18	13	13	8	5	2	1	0
gp100 + pbo	136	93	58	32	23	17	16	7	5	5	3	1	0	0	0

4. Control (empty vectors plus saline) vs. PROSTVAC-VF plus GM-CSF in Castration-Resistant Prostate Cancer

		No.	Endpoints
Control	empty vectors plus saline	40	PFS and OS
Vaccine	PROSTVAC-VF plus GM-CSF plus two recombinant vectors (each for PSA) plus three costimulatory molecules (B7.1, ICAM-1, LFA-3)	82	

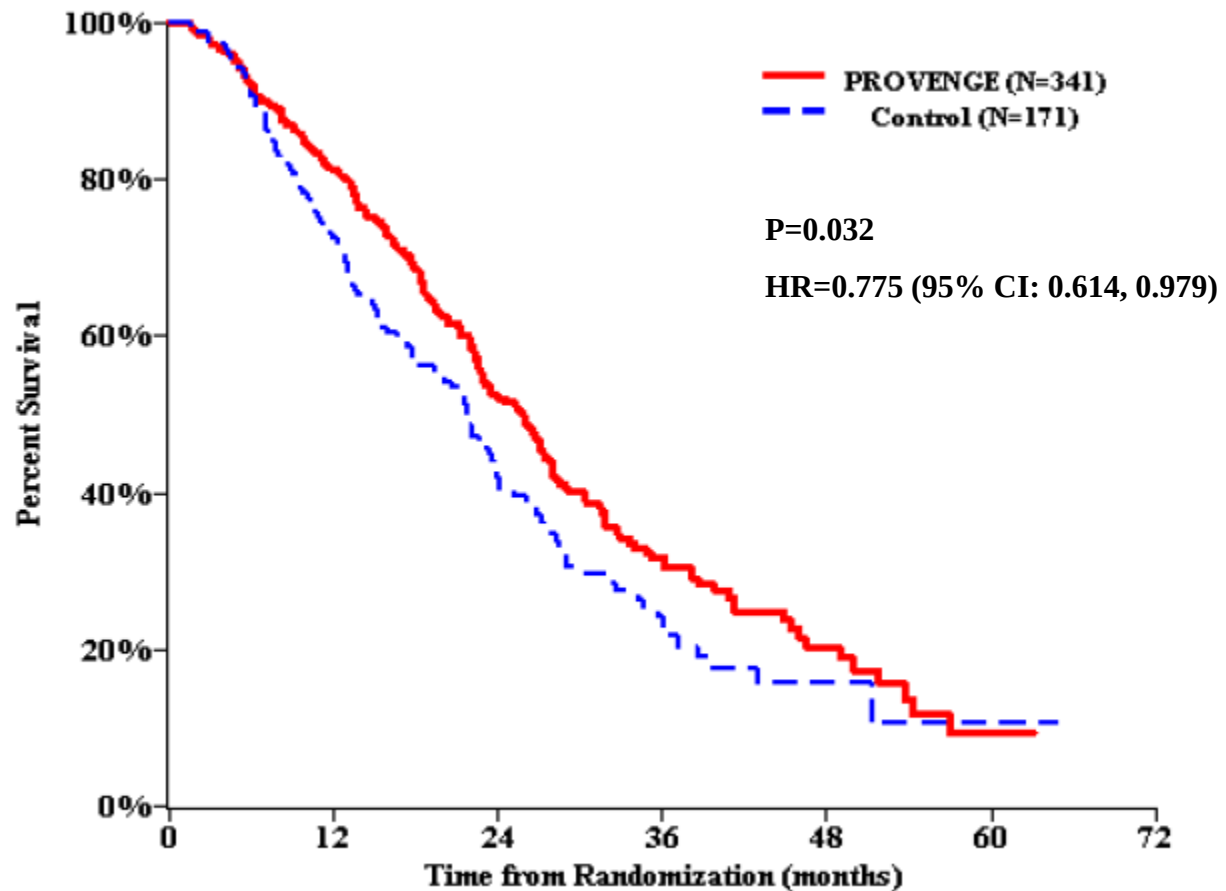
Similar Observations Reported With Other Immunotherapies



5. Cultured Peripheral Blood Mononucleated Cells (PBMC) and Cultured PBMC in the Presence of PAP-GMCSF (sipuleucel T) in Castration-Resistant Prostate Cancer

		No.	Endpoint
Control	PBMC cultured after leukapheresis	171	OS
Vaccine	PBMC cultured in presence of human prostatic acid phosphate (PAP) fused with GMCSF	341	

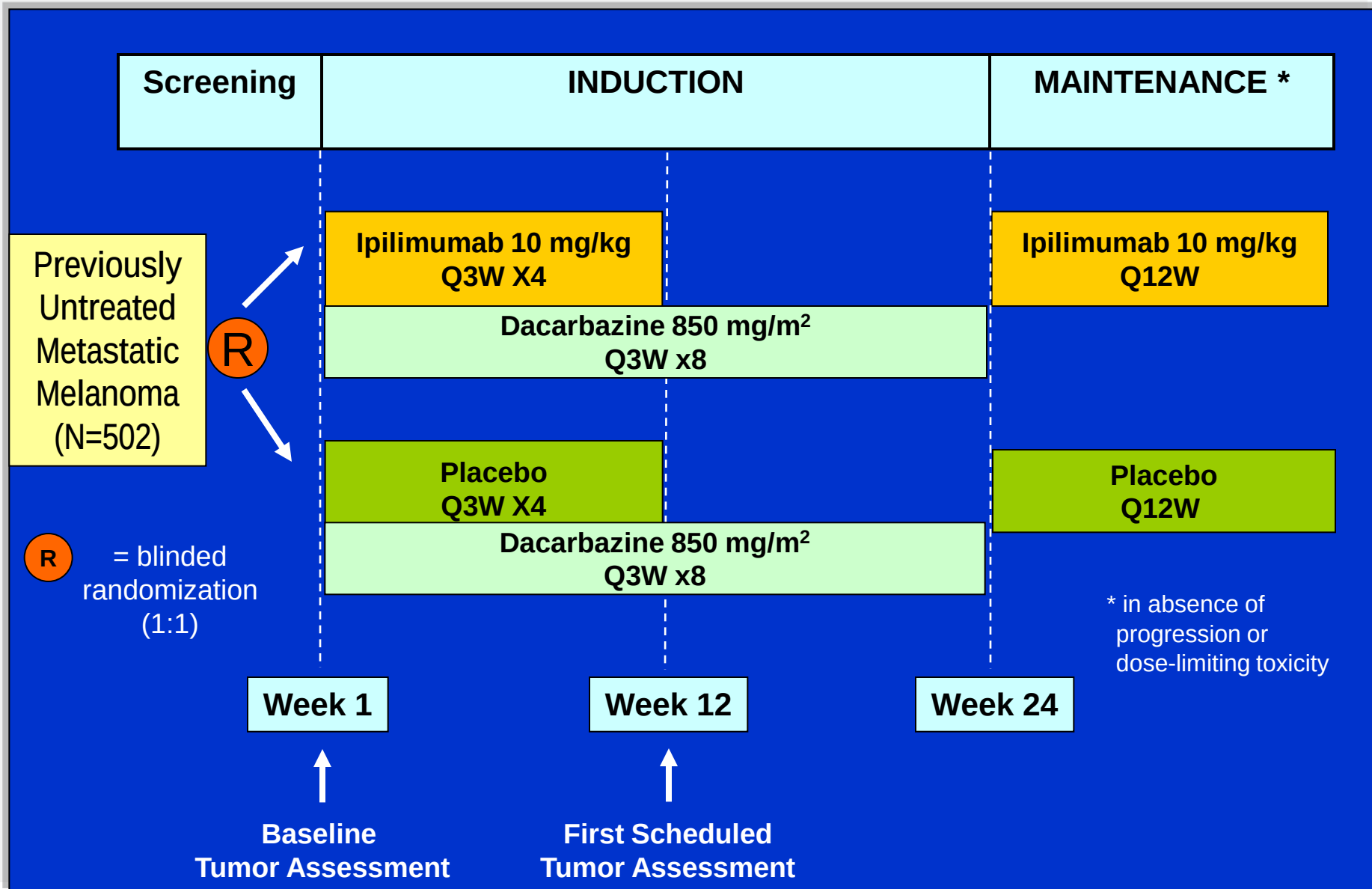
IMPACT Study, Kaplan-Maier Survival Curve, Intent-to-Treat Population



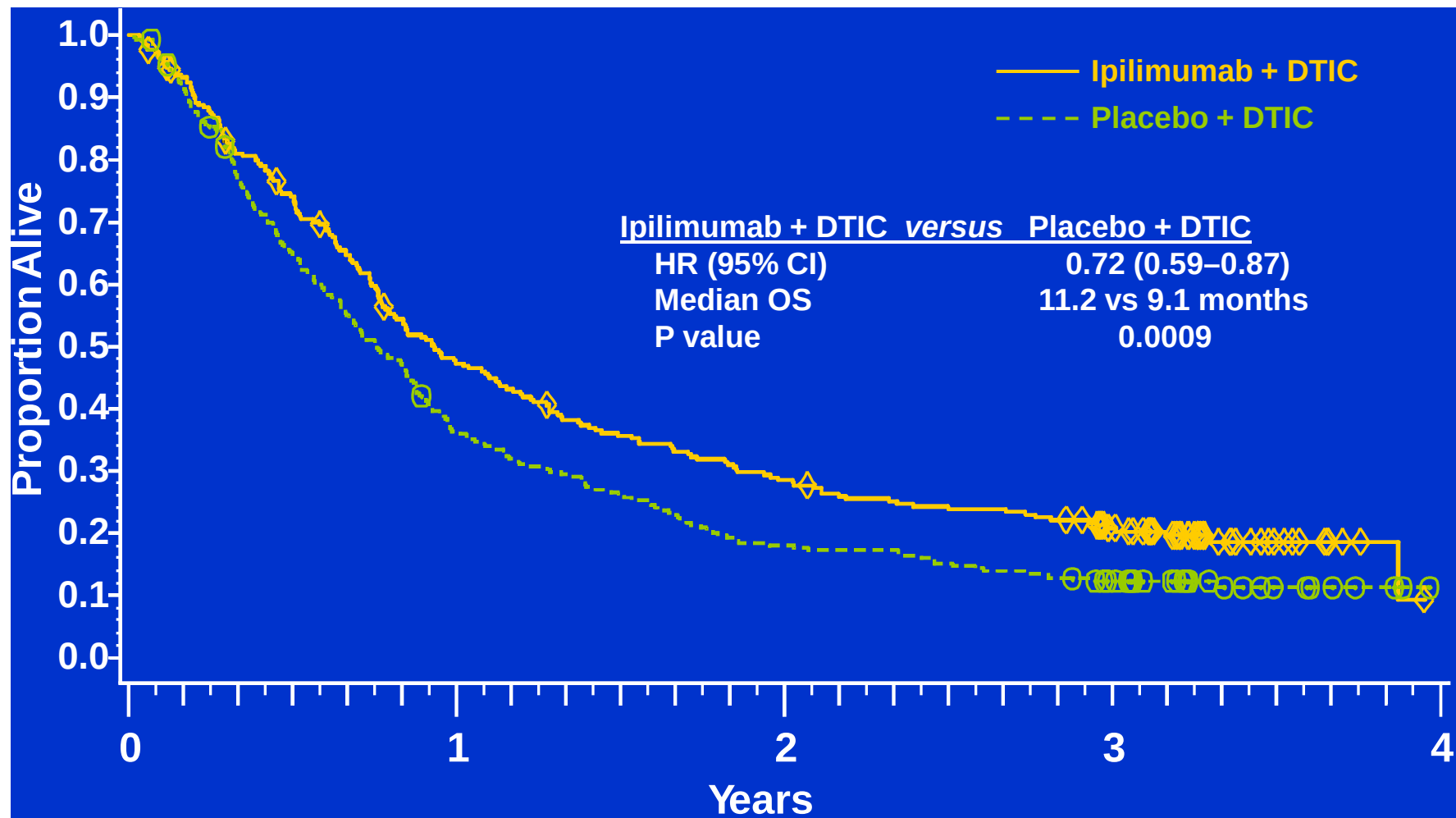
Patients at Risk

PROVENGE®	341	274	129	49	14	1
Placebo	171	123	55	19	4	1

6. Anti-CTLA4 MoAb and Chemotherapy in Untreated, Advance Melanoma – Study 024 Design



Study 024: Overall Survival



- **Different immunologic treatment modalities have been employed in the attempt of improving outcomes:**
 - ◆ **cell therapy and cytokines**
 - ◆ **cytokines and vaccines**
 - ◆ **vaccines and T-cell enhancers**
 - ◆ **T-cell enhancers and chemotherapy**

- **Future directions could explore combinations of immunologic treatment modalities:**
 - ◆ **with other immunologic agents**
 - ◆ **with targeted therapies**
 - ◆ **with anti-angiogenetic agents**