

**Supplementary Table S1. Characteristics of primary uveal melanoma tumors in this study**

Patient #	Tumor Size (High & Diameter)	Cell Type	Presence of closed vascular loops & Ciliary body involvement	Cytogenetic /GEP	GNAQ/GNA1 1
1	18 x 11 x 6 mm in height	Spindled B type	The tumor is loosely attached to the sclera with a loosely adherent retina over the surface of the tumor. Extending to involve the ciliary body. The tumor invades nearly full thickness sclera, in a perineural pattern.	Not tested	Not tested
2	13 mm base, 5 mm height	Spindled type	Tumor invades majority of sclera in perivascular patter.	Class 1 (subclass not performed)	Not tested
3	13 mm base, 7.0 mm height	Mixed spindled and epithelioid cell types.	Vortex vein invasion present; tumor extends extraocularly in vortex vein	Class 2	Not tested
4	20 mm base 9 mm height (beginning 6.0 mm from the limbus).	Epithelioid cell type	Focal Choroidal invasion present. Tumor surrounds optic nerve.	Class 1B	GNAQ Q209L
5	18.0 mm base x 12.0 mm height, 6.0 mm from the optic nerve and does not involve the ciliary body	Spindled type	Tumor arises in the choroidal region. Vortex veins, negative for tumor. Optic nerve, negative for tumor. Scleral invasion: absent	Class 1A	Not tested

6	12 x 10 mm base, 8 mm height	Spindled type	Tumor involves the ciliary body and the choroid. Minimal scleral invasion. The tumor does not involve the canal of schlemm.	Class 2	Not tested
7	18.0 mm base, 4 mm height	Mixed spindled and epithelioid cell types.	The tumor in the extraocular space near the conjunctiva is entirely covered by conjunctiva/soft tissue ( margins negative). Extraocular extension present. Tumor invades sclera and canal of schlemm, extending to subconjunctival surface.	Class 2	Not tested
8	20 mm base x 10 mm height	Mixed spindled and epithelioid cell types.	Tumor involving choroid and ciliary body with focal extension onto iris. Choroidal invasion present.	Class 1B	Not tested
9	12 mm base x 6 mm height	Spindled type	Scleral invasion present in perivasuclar pattern. Extraocular extension is not identified. Vortex veins and optic nerve, negative for tumor	Class 1B	Not tested
10	15 mm base x 11mm height	Mixed spindled and epithelioid cell types.	Scleral invasion: absent. Vortex veins: negative for tumor Optic nerve: negative for tumor	Class 2	Not tested

11	9 mm base and 12 mm height	Mixed spindled and epithelioid cell types.	Invades ciliary body and iris extending into the anterior chamber. Scleral invasion: Present with probable involvement of the canal of schlemm. Extraocular extension: Present, 1 mm focus. Optic nerve and optic nerve margin, negative for tumor Vortex veins, negative for tumor	Class 2	Not tested
12	14 mm base, 6 mm height	Spindled type	Superficial scleral invasion present. optic nerve invasion is not identified. vortex vein is negative for tumor. extraocular extension is not identified.	Not tested	wt for <i>GNAQ</i> ; <i>GNA11</i> not tested
13	Primary tumor #1 Size: N/A	Spindled type	enucleated left globe TISSUE FROM LEFT ORBIT – Multiple black, red, soft tissue fragments without discernible normal tissue ( 3 x 2 x 0.3 cm in aggregate)	Class 1B	<i>GNAQ</i> Q209L

	Primary tumor #2 5 x 4.6 x 3.1 cm	Spindled B morphology	Recurrent melanoma LEFT ORBITAL CONTENTS, UVEAL MELANOMA, TIL PROTOCOL – A light tan skin ellipse (6.7 x 4 cm) that contains both eyelids with eyelashes on the superior. Attached to the skin is a portion of tan and brown soft tissue (5.7 x 5.2 x 3.8 cm). Serial sections reveal a mass (5 x 4.6 x 3.1 cm) underlying the skin, that's friable, necrotic black and soft. The mass is grossly located 0.6 cm from the skin, 1 cm from lateral, 0.8 cm from medial and 0.3 cm from the resection margins. There are areas where the mass appears to extend into the adjacent adipose tissue. 85% of the specimen was provided for TIL protocol.		
14	11 mm base, 10 mm height	Spindled B type	Superficial scleral invasion is present. The tumor is confined to the globe, extraocular extension is not identified. Vortex vein invasion is not identified. The optic nerve is uninvolved	Class 1B	Not tested

15	14 mm base X 5 mm height	Mixed spindled and epithelioid cell types.	Scleral invasion present. Extraocular extension negative. Vortex veins negative for tumor. Optic nerve negative for tumor.	Class 2	Not tested
16	22 mm base x 12 mm height	Epithelioid cell type	Tumor invades ciliary body and sclera. Vortex veins, negative for tumor Optic nerve, negative for invasion.	Class 2	Not tested
17	16 mm base X 13 mm height	Mixed spindled and epithelioid cell types.	Vortex veins negative for tumor Optic nerve negative for tumor Superficial invasion of sclera Extraocular extension, absent	Class 1A	<i>GNA11</i> Q209L
18	15 mm base x 11 mm height	Mixed spindled and epithelioid cell types.	Extraocular extension present (approx. 3 mm focus). Tumor invades the sclera. Vascular invasion: present. Optic nerve, negative for tumor	Class 2	<i>GNAQ</i> wt; <i>GNA11</i> testing unsuccessful
19	18 mm base, 12 mm height	Mixed spindled and epithelioid cell types.	Sclera and ciliary body invasion present. Extraocular extension absent. Vortex veins negative for tumor Optic nerve negative for tumor	Class 1A	<i>GNAQ</i> Q209P
20	15 mm base, 5 mm height	Mixed spindled and epithelioid cell types.	Scleral invasion present Extraocular extension, focal < 0.1 cm Optic nerve evaluation, pending level review. Optic nerve margin negative for tumor. Vortex vein, no definitive invasion.	Class 2	<i>GNAQ</i> Q209P

21	(12 x 13 mm) base x 7 mm height	Spindled B type	Scleral invasion present Intravascular tumor present within sclera Extraocular extension of vortex veins, negative for tumor. Optic nerve, negative for tumor.	Class 2	<i>GNA11</i> Q209L
22	25 mm base, 10 mm height	Spindled B type	Tumor involving the choroid and ciliary body with extension into the trabecular meshwork. Superficial scleral invasion is present. Extraocular extension is not identified. Vortex veins are negative for tumor. Optic nerve is negative for tumor. The overlying retina is atrophied.	Class 1A	<i>GNA11</i> Q209L; <i>RET</i> V648I
23	18 mm base x 11 mm in height	Mixed spindled and epithelioid cell types.	Gross extraocular extension present. Tumor extends to involve ciliary body. Tumor involves vortex veins. Optic nerve and optic nerve, margin negative for tumor.	Class 2	wt for <i>GNAQ</i> ; <i>GNA11</i> not tested
24	11 mm base, 3 mm height	Spindled type	Superficial, sclera and optic nerve invasion present. Extraocular extension is not identified Vortex veins negative for invasion	Class 1A	<i>GNA11</i> Q209L

25	11.0 mm base x 5.0 mm height	Mixed spindled and epithelioid cell types.	Tumor invades ciliary body and iris. Tumor invades sclera near full thickness in a perivascular pattern Extraocular extension is not identified. Vortex veins, negative for tumor. Optic nerve, negative for tumor.	Class 2	Not tested
26	12 mm base x 20 mm height	Mixed spindled and epithelioid cell types.	Scleral invasion with extraocular extension present, 10 mm focus, posterior orbital Optic nerve margin, negative for tumor Skeletal muscle, negative for tumor.	Class 2	wt for <i>GNAQ</i> ; <i>GNA11</i> not tested