Supplement: Our Survey (Subsamples of SEEDS observations)

Our survey is conducted as part of the SEEDS program. The SEEDS survey results have been reported in numerous works (e.g., Janson et al. 2013b; Brandt et al. 2014b; Uyama et al. 2016). The supplement contains results of subsamples that we obtained, including previously reported results of Pleiades stars (Yamamoto et al. 2013). Supplementary Table 1 represents our target list. We focused on young stars whose ages are well known. Each target belongs to one of the moving groups (MG) or associations: the Pleiades (120 Myr, 135 pc), Ursa Major MG (500 Myr, ~25 pc; King et al. 2003), Octans-Near association (<100 Myr, ~90 pc; Zuckerman et al. 2013), and AB Doradus MG (~50 Myr, 30 pc; López-Santiago et al. 2006). One target (GJ 212) is considered to belong to either Hercules-Lyra association (~200 Myr, <25 pc; López-Santiago et al. 2006) or Local association (20–150 Myr: Montes et al. 2001). Supplementary Table 2 shows the observing logs of data taken after September 2012, excluding the ones reported in (Yamamoto et al. 2013). Supplementary Table 3 is the companion candidates list including their projected separation, position angle (PA), and photometric results. The companion status is determined by confirmation of their proper motion.

Supplementary Table 1. Target List

Name	HD Number	RA	DEC	Sp.T	Group	Distance	R	J	H	K_S
		(h m s)	(d m s)			(pc)	(mag)	(mag)	(mag)	(mag)
HIP 6276	-	01 20 32.3	-11 28 03.7	G9	AB Dor	35.1	7.90	7.03	6.65	6.55
Chi Cet B	11131	01 49 23.4	-10 42 12.9	G1	UMa	23.0	6.39	5.54	5.29	5.15
HD 23061†	23061	03 42 55.1	+24 29 35.1	F5	Pleiades	135	9.01	8.51	8.33	8.26
HII 3456†	-	03 43 27.1	+25 23 15.3	G2	Pleiades	135	11.21	9.75	9.31	9.22
HD 23247†	23247	03 44 23.5	+24 07 57.6	F3	Pleiades	135	8.85	8.08	7.81	7.77
HII 3441	-	03 44 43.9	+25 29 57.1	K	Pleiades	135	11.41	10.39	9.86	9.74
HII 636†	-	03 45 22.2	+23 28 18.2	K	Pleiades	135	11.69	10.47	9.96	9.85
V855 Tau†	-	03 45 40.2	+24 37 38.1	F8	Pleiades	135	9.37	8.62	8.34	8.29
BD+23 514†	-	03 45 41.9	+24 25 53.5	G5	Pleiades	135	11.15	9.80	9.53	9.40
V1171 Tau†	-	03 46 28.4	+24 26 02.1	G8	Pleiades	135	10.51	9.64	9.27	9.16
HD 23514†	23514	03 46 38.4	+22 55 11.2	G0	Pleiades	135	8.96	8.48	8.29	8.15
HD 282954†	282954	03 46 38.8	+24 57 34.7	G0	Pleiades	135	9.98	9.11	8.85	8.76
HII 1348†	-	03 47 18.1	+24 23 26.8	K5	Pleiades	135	12.43	10.49	9.83	9.72
TYC 1800-2144-1†	-	03 48 34.5	+23 26 05.3	G0	Pleiades	135	10.37	9.20	8.98	8.87
HD 23863†	23863	03 49 12.2	+23 53 12.5	A7	Pleiades	135	7.98	7.67	7.60	7.58
HII 2311†	-	03 49 28.7	+23 42 44.1	G2	Pleiades	135	10.91	9.91	9.54	9.43
HD 23912†	23912	03 49 32.7	+23 22 49.5	F3	Pleiades	135	8.88	8.26	8.10	8.04
HII 2366†	-	03 49 36.5	+24 17 46.1	G2	Pleiades	135	10.88	10.03	9.63	9.55
HII 2462†	-	03 49 50.4	+23 42 20.2	G2	Pleiades	135	11.50	10.07	9.70	9.60
BD+22 574†	-	03 49 56.5	+23 13 07.0	F8	Pleiades	135	10.02	9.15	8.85	8.80
V1174 Tau†	-	03 50 34.6	+24 30 28.2	G8	Pleiades	135	11.61	10.70	10.20	10.08
HD 24132†	24132	03 51 27.2	+24 31 07.1	F2	Pleiades	135	8.49	8.06	7.93	7.88
V1054 Tau†	-	03 51 39.3	+24 32 56.1	K	Pleiades	135	12.35	10.42	9.92	9.81
BD-01 565	24916	03 57 28.7	-01 09 34.1	K4	UMa	15.8	7.34	6.06	5.49	5.34
ome Tau	27045	04 17 15.7	+20 34 42.9	A3	ONA	29	4.77	4.79	4.58	4.36
GJ 212	233153	05 41 30.7	+53 29 23.3	M0	HLA/LA	12.5	8.81	6.59	5.96	5.76
V1386 Ori	41593	06 06 40.5	+15 32 31.6	K0	UMa	15.5	6.24	5.32	4.94	4.82
HIP 36624	59507	07 31 55.6	+38 53 45.8	A2	ONA	80.4	6.53	6.41	6.47	6.42
CCDM J08316+3458A	71974	08 31 35.0	+34 57 58.4	G5	UMa	28.7	6.82	5.92	5.50	5.47
BD-13 2855	81659	09 26 42.8	-14 29 26.7	G6	UMa	39.9	7.44	6.69	6.41	6.31
DS Leo	95650	11 02 38.3	+21 58 01.7	M2	UMa	11.7	8.64	6.52	5.90	5.69
BD+52 1638	109647	12 35 51.3	+51 13 17.3	K0	UMa	26.3	7.94	6.73	6.25	6.16
HR 4803	109799	12 37 42.3	-27 08 20.0	F1	UMa	34.6	5.23	4.76	4.63	4.54
BD+22 2522	112196	12 54 40.0	+22 06 28.6	F8	UMa	34.3	6.67	5.88	5.63	5.55
GJ 516	-	13 32 44.8	+16 48 40.9	M3	UMa	13.8	12.04	7.64	7.07	6.83
HR 5148	119124	13 40 23.2	+50 31 09.9	F8	ONA	25	6.02	5.28	5.11	5.02
GJ 9457B	119124B	13 40 24.5	+50 30 57.6	K7	ONA	25	9.98	7.79	7.16	7.01
HR 7451	184960	19 34 19.8	+51 14 11.8	F7	UMa	25.6	5.43	4.70	4.59	4.49
BD-00 4333	211575	22 18 04.3	-00 14 15.6	F3	UMa	41.5	6.12	5.59	5.35	5.33

Note: † Previously reported in Yamamoto et al. (2013).

Group column abbreviations

AB Dor: AB Doradus moving group (López-Santiago et al. 2006)

UMa: Ursa Major moving group (King et al. 2003)

Pleiades: Pleiades open cluster (Yamamoto et al. 2013)

HLA: Hercules-Lyra moving group (López-Santiago et al. 2006)

LA: Local Association (Montes et al. 2001)

ONA: Octans-Near Association (Zuckerman et al. 2013)

R magnitude: NOMAD database (Zacharias et al. 2005)

J, H, K_S magnitudes: 2MASS (Cutri et al. 2003)

Other properties are taken from the above group citations.

Supplementary Table 2. Observing Logs Taken after September 2012

Name	Date (UT)	Mode	Filter	Sub Exposure (s)	Coadd	Total Exposure (minutes)
HIP 6276	2012 Nov. 7	DI+ADI	H	15	10	40
Chi Cet B	2013 Jan. 3	DI+ADI	H	5	10	31.7
HII 3441	2011 Sep. 4	SDI+ADI	H_S, H_L	10	1	48.3
	2014 Oct. 11	DI+ADI	H	1.5	30	15
	2015 Jan. 8	DI	J, H, K_S	20, 10, 10	1, 3/10, 1	18.4, 4.7, 2.2
V1174 Tau	2012 Sep. 12	DI	H	10	3	25
	2013 Oct. 16	DI	J, H, K_S	30, 30, 30	1, 1, 1	8, 9, 8
	2013 Nov. 24	DI+ADI	H	10, 1.5	5, 50	28.8
	2014 Oct. 7, 9	DI	H	60, 30	1, 1	15, 25
V1054 Tau	2012 Sep. 11, 12	DI	H	10, 10	1, 3	8.5, 10
	2013 Feb. 26*	DI	H	20	3	36
BD-01 565	2012 Nov. 5	DI+ADI	H	1.5	10	13
ome Tau	2014 Jan. 20	DI+ADI	H	1.5	10	17.5
	2014 Oct. 10	DI	H	30	1	12.5
GJ 212	2013 Jan. 2	DI+ADI	H	15	3	43.5
	2013 Oct. 17	DI	H	15	10	15
V1386 Ori	2013 Jan. 3*	DI+ADI	H	10	3	61
HIP 36624	2013 Nov. 23	DI+ADI	H	10	10	48.3
	2015 Jan. 7	DI, DI+ADI	H	60, 20	1, 1	50, 21.3
CCDM J08316+3458A	2013 Nov. 24	DI+ADI	H	10	10	45
	2015 Jan. 8	DI+ADI	H	10	10	38.3
BD-13 2855	2013 Jan. 1	DI+ADI	H	15	3	33.8
	2014 Jan. 20	DI+ADI	H	15	2	13
	2014 Apr. 23	DI	J, H	60, 30	1, 1	13, 10
DS Leo	2014 Jan. 21	DI+ADI	H	1.5	10	17.3
BD+52 1638	2013 Feb. 26	DI+ADI	H	20	3	33
HR 4803	2013 Jan. 2	DI+ADI	H	10	10	51.7
BD+22 2522	2013 May 18	DI+ADI	H	5	10	33.3
GJ 516	2014 Jun. 8	DI+ADI	H	5	10	21.7
HR 5148	2014 Apr. 23	DI+ADI	H	1.5	10	26.3
GJ 9457B	2014 Jun. 7	DI+ADI	H	15	3	33.7
HR 7451	2012 Sep. 14	DI+ADI	H	1.5	10	19
	2014 Apr. 24	DI	H	60	1	31
BD-00 4333	2012 Nov. 5	DI+ADI	H	1.5	10	20.8
	2013 Oct. 16*	DI	K_S	10	1	5.3
	2014 Jun. 7	DI	J, H, K_S	60, 30, 60	1, 1, 1	3, 10, 2

Note: * Extremely poor condition

Supplementary Table 3. Companion Candidates List

Primary Name	CC Number	Status	Date (UT)	Separation (arcsec)	PA (degree)	H (mag)
Chi Cet B	CC1	C (known)	2013 Jan. 3	0.278	349.7	8.68
	CC2	maybe C$^{\diamond}$	2013 Jan. 3	6.15	353.4	9.39
HD 23247	CC1‡	C (stellar)	2011 Jan. 27	3.86	267.2	11.0
			2011 Dec. 24	3.83	267.0	-
HII 3441	CC1	C	2011 Sep. 4	0.493	135.9	-
			2014 Oct. 11	0.491	136.9	15.2
			2015 Jan. 8	0.491	136.5	-
V855 Tau	CC1†	maybe FG	2011 Jan. 28	8.05	19.5	17.2
V1171 Tau	CC1†	BG	2012 Dec. 31	12.52	134.6	17.8
	CC2†	BG	2012 Dec. 31	12.63	135.5	18.5
	CC3‡	BG	2009 Nov. 1	9.08	125.9	19.0
			2012 Dec. 31	8.94	125.4	-
HD 23514	CC1†	C	2010 Dec. 1	2.65	227.6	15.4
HD 282954	CC1†	BG	2012 Sep. 12	8.94	103.3	14.4
HII 1348	CC1†	C	2011 Dec. 23	1.12	346.1	15.7
HD 23912	CC1†	BG	2011 Jan. 27	3.44	14.5	17.2
BD+22 574	CC1†	BG	2009 Oct. 31	3.29	92.6	19.2
	CC2†	BG	2009 Oct. 31	8.50	50.0	17.4
V1174 Tau	CC1‡	BG	2012 Sep. 12	6.47	63.6	18.0
			2013 Oct. 16	6.51	63.2	-
			2013 Nov. 24	6.46	63.3	-
			2014 Oct. 7, 9	6.46	62.9	-
	CC2‡	BG	2012 Sep.12	9.24	37.5	18.5
			2013 Oct. 16	9.35	37.2	-
			2013 Nov. 24	9.26	37.3	-
			2014 Oct. 7, 9	9.28	36.9	-
V1054 Tau	CC1‡	BG	2012 Sep. 12	7.05	110.1	18.1
			2013 Feb. 26	*	*	*
	CC2‡	BG	2012 Sep. 12	7.33	75.9	16.0
			2013 Feb. 26	*	*	*
BD+01 565	CC1	C (known)	2012 Nov. 5	10.98	14.3	7.28
ome Tau	CC1	BG	2014 Jan. 20	7.47	305.3	17.5
			2014 Oct. 10	7.52	305.3	-
	CC2	BG	2014 Jan. 20	9.47	51.8	16.2
			2014 Oct. 10	9.50	51.5	-
GJ 212	CC1	BG (extended)	2013 Jan. 2	6.51	195.2	18.6
			2013 Oct. 17	6.08	197.4	-
	CC2	BG	2013 Jan. 2	7.72	232.8	19.3
			2013 Oct. 17	7.50	237.0	-
HIP 36624	CC1	BG	2013 Nov. 23	1.45	128.7	16.6
			2015 Jan. 7	1.47	126.3	-
	CC2	BG	2013 Nov. 23	9.67	316.6	20.8
			2015 Jan. 7	9.67	317.0	-
CCDM J08316+3458A	CC1	C (known)	2013 Nov. 24	0.205	341.2	6.31
			2015 Jan. 8	0.150	314.9	-
	CC2	Artifact?	2013 Nov. 24	3.608	303.7	20.8
			2015 Jan. 8	⋆	⋆	⋆
	CC3	U	2013 Nov. 24	3.774	343.7	21.4

Supplementary Table 3. (Continued)

Primary Name	CC Number	Status	Date (UT)	Separation (arcsec)	PA (degree)	H (mag)
			2015 Jan. 8	3.762	343.9	-
BD-13 2855	CC1	BG	2013 Jan. 1	8.374	332.2	17.4
			2014 Jan. 20	8.495	332.5	-
			2014 Apr. 23	8.506	332.7	-
	CC2	BG	2013 Jan. 1	11.135	331.6	13.2
			2014 Jan. 20	11.250	331.8	-
			2014 Apr. 23	11.264	332.0	-
	CC3♯	-	-	-	-	-
BD+52 1638	CC1	U	2013 Feb. 26	1.194	185.1	8.62
HR 4803	CC1	C (known)	2013 Jan. 2	2.571	198.1	8.53
BD+22 2522	CC1	C (known)	2013 May 18	1.645	51.4	10.6
GJ 516	CC1	C (known)	2014 Jun. 8	2.744	53.2	7.39
HR 7451	CC1	BG	2012 Sep. 14	9.318	140.5	19.3
			2014 Apr. 24	9.010	139.8	-
BD-00 4333	CC1	BG	2012 Nov. 5	7.098	16.9	19.0
			2013 Oct. 16	∗	∗	∗
			2014 Jun. 7	7.172	16.9	-
	CC2	BG	2012 Nov. 5	8.959	14.8	17.5
			2013 Oct. 16	∗	∗	∗
			2014 Jun. 7	9.033	14.8	-

Note: Status column abbreviations

BG: background objects, FG: foreground objects, C: companions, U: undefined objects

Typical uncertainties of separation, PA, and photometric results are 0.″01–0.″03, 0.1–1.0°, and 0.1–0.9 mag.

† Previously reported in Yamamoto et al. (2013), and only the latest properties are shown.

‡ Yamamoto et al. (2013) could not conclude the companion status of these objects.

∗ Data were not suitable for accurate measurements due to poor condition.

⋄ This was judged by comparison with the previous work (Ammler-von Eiff et al. 2016).

⋆ This CC was not detected in the second epoch.

♯ This object locates very close to CC2. It has a possibility of artifacts.

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