

	20	40	60	80	
Homo sapiens	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Pan troglodytes	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Bos taurus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Equus caballus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Sus scrofa	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Canis familiaris	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Oryctolagus cuniculus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Gallus gallus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Taeniopygia guttata	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Mus musculus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Anolis carolinensis	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Xenopus	MAHCGQLNWLCLAW	ERKESPDFLSIFRLY	LDLTPKLIKCSDKTIT	TKTHCLLPLISSALSSIVL	IGWQWTKTARHYKAGKAIHQONPOS : 93
Homo sapiens	100	120	140	160	180
Homo sapiens	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Pan troglodytes	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Bos taurus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Equus caballus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Sus scrofa	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Canis familiaris	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Oryctolagus cuniculus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Gallus gallus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Taeniopygia guttata	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Mus musculus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Anolis carolinensis	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Xenopus	RHRPRPAGALPQISRD	SQRCLLRLFRVLR	PRGFSFSAEPAFAFGATA	MAASLSRLSLELLD	WVLRRLRRLRLLPSPAAVAEQEESE : 181
Homo sapiens	200	220	240	260	280
Homo sapiens	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Pan troglodytes	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Bos taurus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Equus caballus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Sus scrofa	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Canis familiaris	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Oryctolagus cuniculus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Gallus gallus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Taeniopygia guttata	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Mus musculus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Anolis carolinensis	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Xenopus	EKEKGEASSPRG	LCPAVALRRLDFFPTLV	VFDGEGAPAAEFPW	GVLRRGKGLDLPQAT	HRRLRLLPSPAAVAEQEESE : 266
Homo sapiens	300	320	340	360	380
Homo sapiens	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Pan troglodytes	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Bos taurus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Equus caballus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Sus scrofa	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Canis familiaris	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Oryctolagus cuniculus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Gallus gallus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Taeniopygia guttata	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Mus musculus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Anolis carolinensis	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Xenopus	PTPTLGLGAD	ATAAHRVVGPA	ASGCRHRRGRRL	RVVERTGDA	AVLVDL
Homo sapiens	400	420	440	460	480
Homo sapiens	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Pan troglodytes	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Bos taurus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Equus caballus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Sus scrofa	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Canis familiaris	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Oryctolagus cuniculus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Gallus gallus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Taeniopygia guttata	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Mus musculus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Anolis carolinensis	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Xenopus	GAEVSPQTOQE	ROOLOPAS	PSPEADKPLG	ELIPEAKDLKEMV	KSKAECNMGVSV
Homo sapiens	500	520	540	560	580
Homo sapiens	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Pan troglodytes	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Bos taurus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Equus caballus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Sus scrofa	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Canis familiaris	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Oryctolagus cuniculus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Gallus gallus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Taeniopygia guttata	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Mus musculus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Anolis carolinensis	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Xenopus	VTELDME	NTCPPLV	NLTOEKPPAAQ	ITIE	PORNPVEEMDD
Homo sapiens	600	620	640	660	680
Homo sapiens	TC	QTE	NRINT	ROL	NALVE
Pan troglodytes	TC	QTE	NRINT	ROL	NALVE
Bos taurus	TC	QTE	NRINT	ROL	NALVE
Equus caballus	TC	QTE	NRINT	ROL	NALVE
Sus scrofa	TC	QTE	NRINT	ROL	NALVE
Canis familiaris	TC	QTE	NRINT	ROL	NALVE
Oryctolagus cuniculus	TC	QTE	NRINT	ROL	NALVE
Gallus gallus	TC	QTE	NRINT	ROL	NALVE
Taeniopygia guttata	TC	QTE	NRINT	ROL	NALVE
Mus musculus	TC	QTE	NRINT	ROL	NALVE
Anolis carolinensis	TC	QTE	NRINT	ROL	NALVE
Xenopus	TC	QTE	NRINT	ROL	NALVE
Homo sapiens	700	720	740	760	780
Homo sapiens	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Pan troglodytes	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Bos taurus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Equus caballus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Sus scrofa	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Canis familiaris	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Oryctolagus cuniculus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Gallus gallus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Taeniopygia guttata	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Mus musculus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Anolis carolinensis	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Xenopus	QIENYKEDKYS	SSGALIKRVR	RLG	GL	NTLRL
Homo sapiens	800	820	840	860	880
Homo sapiens	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Pan troglodytes	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Bos taurus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Equus caballus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Sus scrofa	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Canis familiaris	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Oryctolagus cuniculus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Gallus gallus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Taeniopygia guttata	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Mus musculus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Anolis carolinensis	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Xenopus	VKLSSAEO	SOKPOLPE	DKYLDSDASFT	TENDI	ROIS
Homo sapiens	900	920	940	960	980
Homo sapiens	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Pan troglodytes	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Bos taurus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Equus caballus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Sus scrofa	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Canis familiaris	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Oryctolagus cuniculus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Gallus gallus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Taeniopygia guttata	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Mus musculus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Anolis carolinensis	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Xenopus	RTP	INILGNVEMK	IQSECVFOQ	DAVVR	IVDK
Homo sapiens	1000	1020	1040	1060	1080
Homo sapiens	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Pan troglodytes	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Bos taurus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Equus caballus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Sus scrofa	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Canis familiaris	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Oryctolagus cuniculus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Gallus gallus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Taeniopygia guttata	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Mus musculus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Anolis carolinensis	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Xenopus	FCSEED	SRKSKAHDS	RTENPKHSOYTS	SDG	CV
Homo sapiens	1100	1120	1140	1160	1180
Homo sapiens	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Pan troglodytes	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Bos taurus	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Equus caballus	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Sus scrofa	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Canis familiaris	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Oryctolagus cuniculus	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Gallus gallus	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Taeniopygia guttata	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Mus musculus	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Anolis carolinensis	SHWTE	KNOIDBMS	MHN	SKTA	RQ
Xenopus	SHWTE	KNOIDBMS	MHN	SKTA	RQ

Fig. S1. Comparison of MTR120 amino acid sequences from various species.

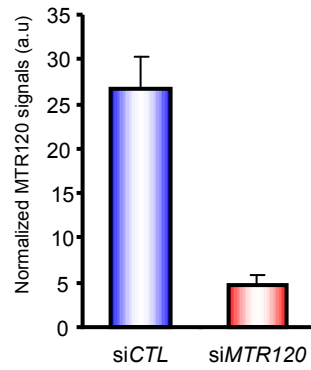
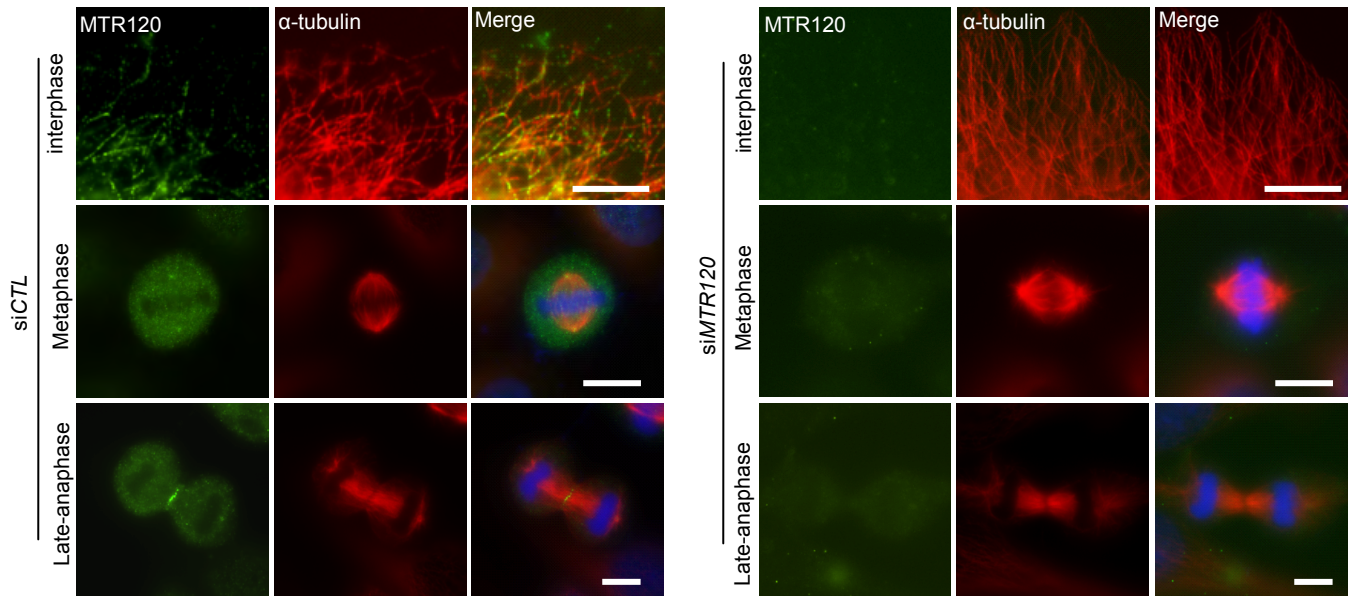


Fig. S2. HeLa cells were transfected with *siCTL* or *siMTR120* and immunostained for MTR120 and α -tubulin at different cell cycle stages. Bar graph showed the fluorescence intensities (\pm SD) of MTR120 were normalized to γ -tubulin signals. 50 cells were surveyed in 3 independent experiments. Error bars represent \pm SD.

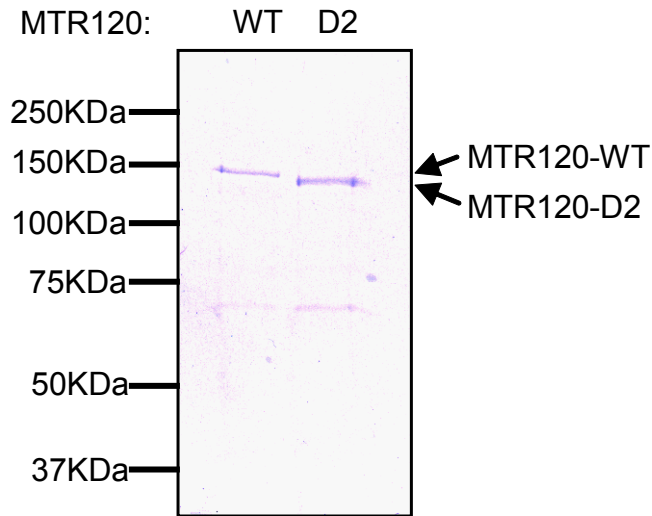


Fig. S3. SFB-tagged fusion proteins were purified from HEK293T cells, separated by SDS-PAGE, and stained by Coomassie blue

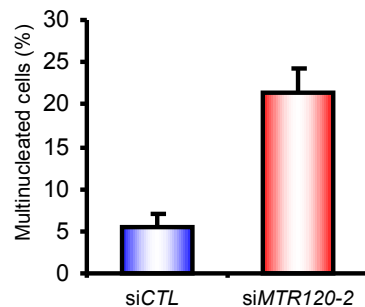
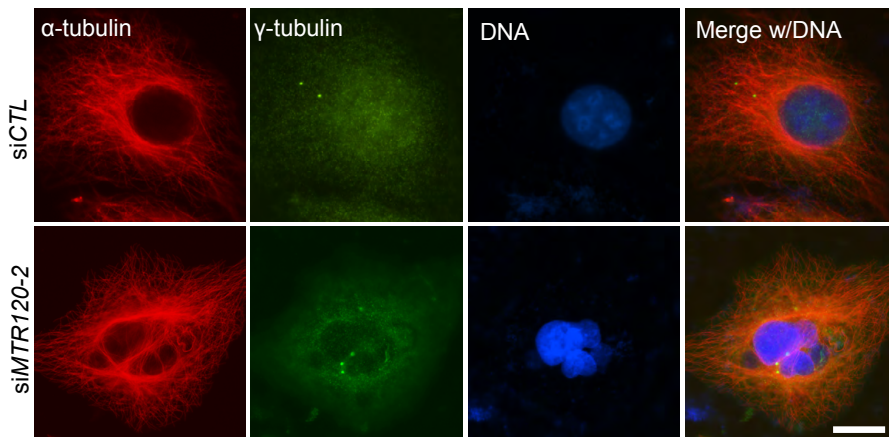
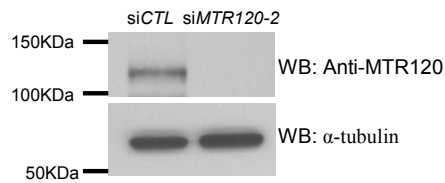


Fig. S4. Cells transfected with control siRNA (siCTL) or a second siRNA targeting *MTR120* (siMTR120-2) were subjected to Western blotting for MTR120 and α -tubulin (upper panel). Immunofluorescence images of cells transfected with siCTL or siMTR120-2. Anti- γ -tubulin and anti- α -tubulin antibodies were used to detect centrosomes and MTs (lower panel). DAPI was used to stain DNA. Bar graph showed the average percentages (\pm SD) of multinucleated cells subjected to siRNA treatment. 100 cells from each group were counted from three independent experiments. Error bars represent \pm SD. Bars, 10 μ m.

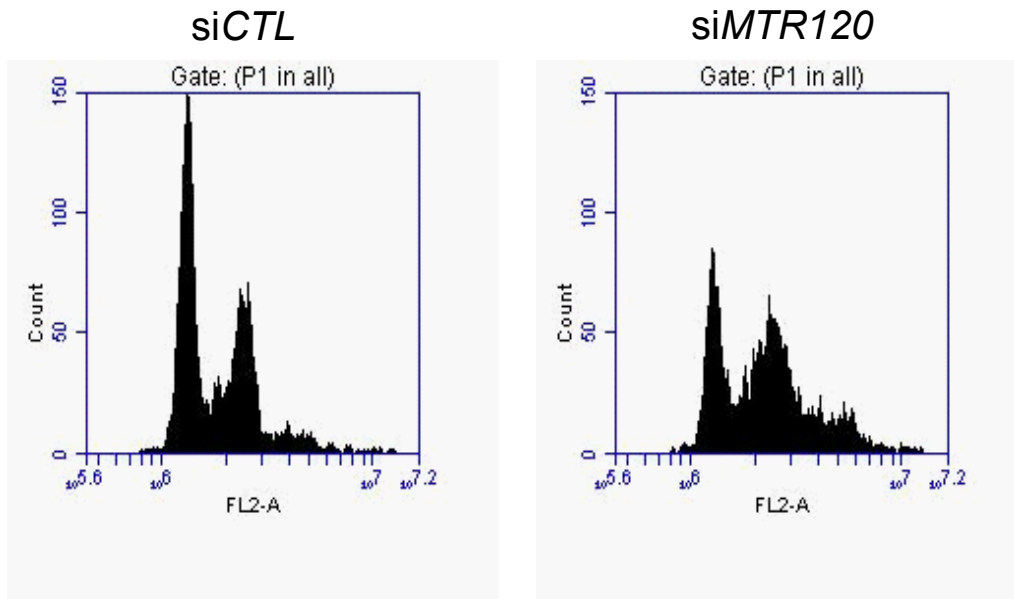


Fig. S5. Primary FACS data showed cell cycle distribution of HeLa cells after siRNA treatment.

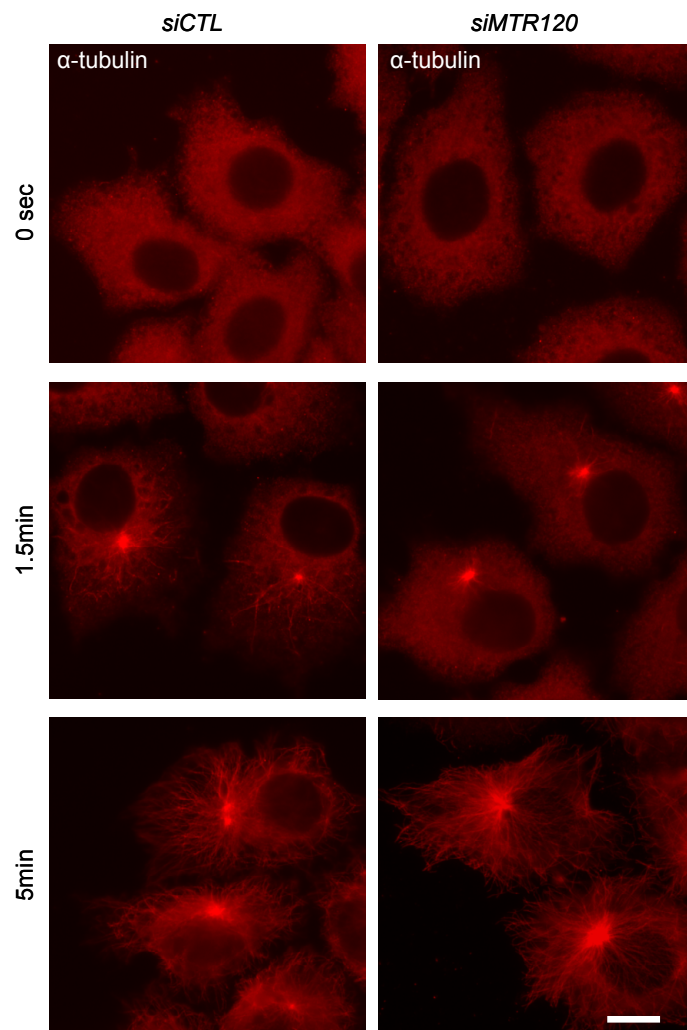
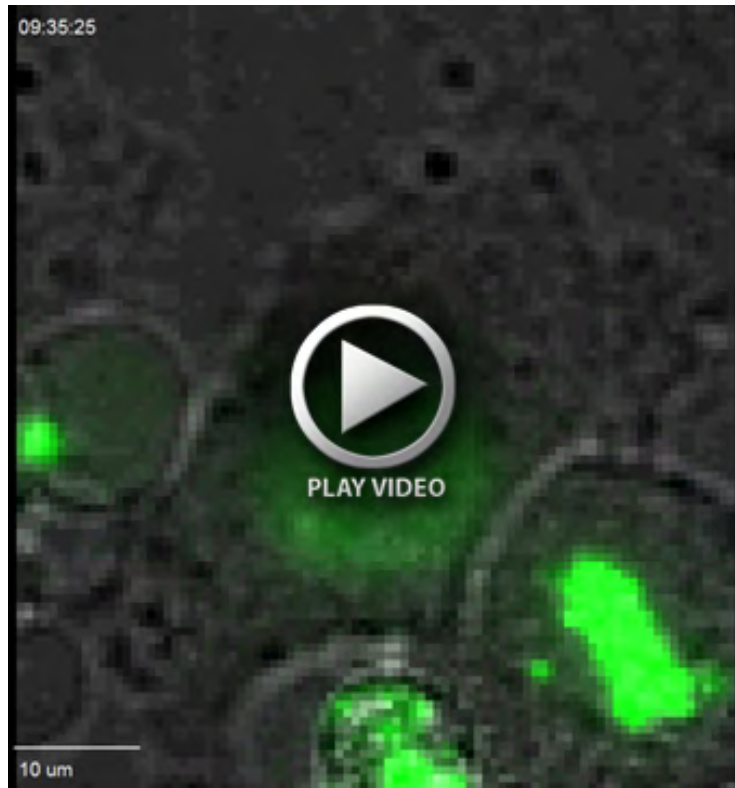
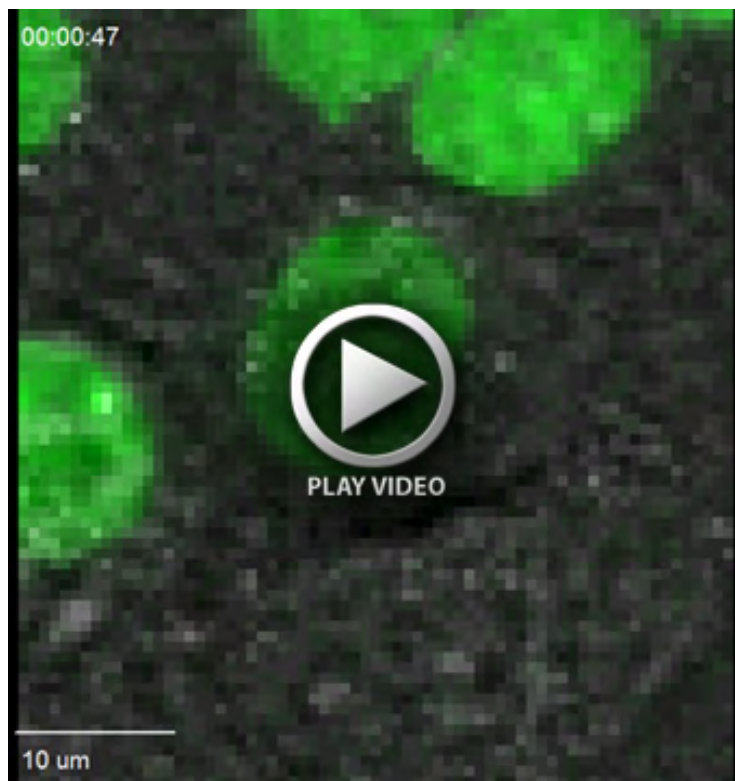


Fig. S6. Cells treated with control and *siMTR120* were placed onto ice water to depolymerize MTs for 1 h, and then the cold medium was replaced with medium prewarmed to 37°C in order to allow the MTs regrow from centrosomes. Cells were then fixed at different timepoints as indicated, followed by immunostaining with anti- α -tubulin antibody. Bars, 10 μ m.



Movie 1. HeLa cells stably expressing GFP-H2B were treated with control siRNA. 72 hours after transfection, cells were video-imaged for brightfield and GFP at 15 minutes interval for 20 hours. The playback rate of the time-series movie is 4 frames per second.



Movie 2. HeLa cells stably expressing GFP-H2B were treated with *MTR120* siRNA. 72 hours after transfection, cells were video-imaged for brightfield and GFP at 15 minutes interval for 20 hours. The playback rate of the time-series movie is 4 frames per second.