

The Michael J. Fox Foundation's Strategy to Generate, Characterize, and Distribute Preclinical Antibody Tools for Investigating Rab Molecular Biology

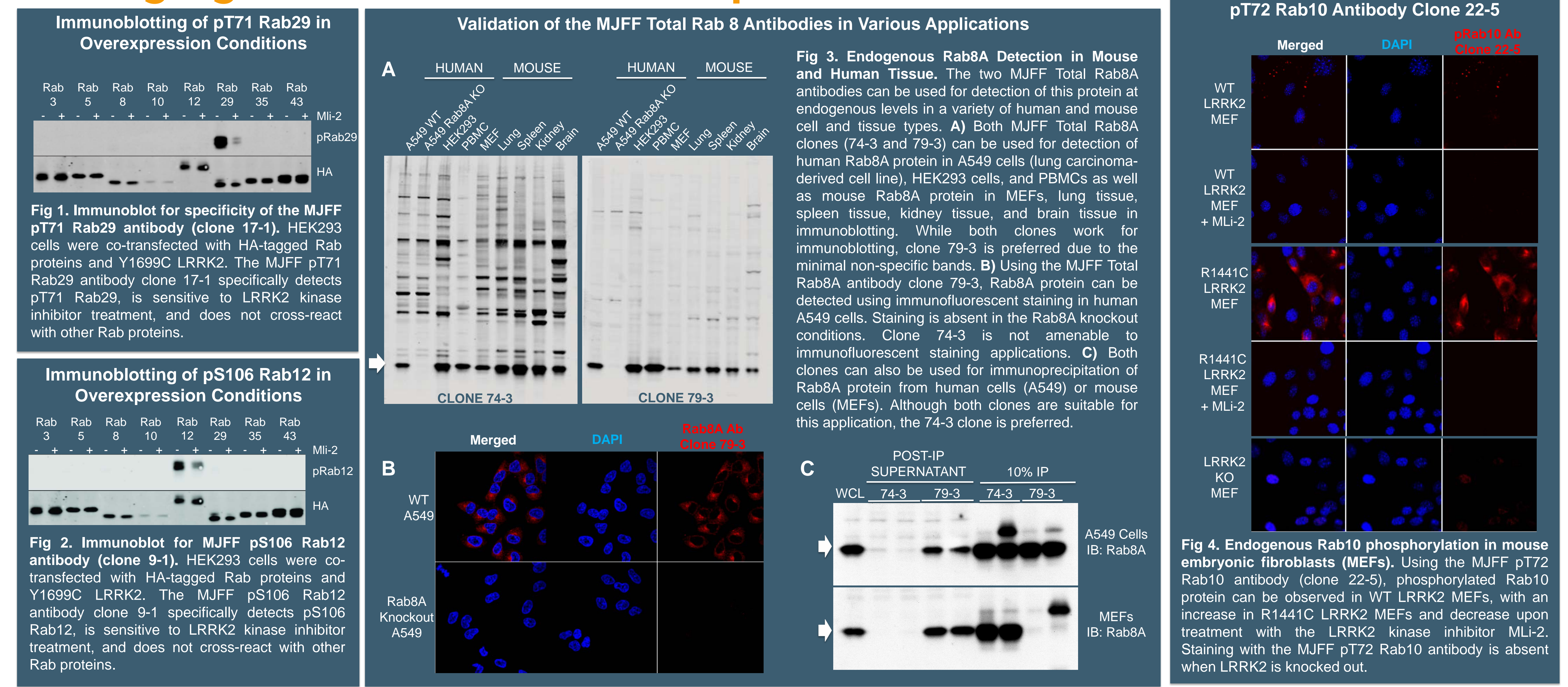
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Summary

A field-wide challenge in Parkinson's disease (PD) research is a general lack of availability for high-quality, reproducible, and readily accessible preclinical research tools. To address these challenges, The Michael J. Fox Foundation for Parkinson's Research (MJFF) has developed a growing resource of preclinical tools for the PD research and drug development communities that endeavors to provide researchers with easy access to rigorously validated, research-enabling preclinical tools for molecular biology studies. An important aspect of MJFF's preclinical tools portfolio are monoclonal antibodies that target PD-relevant proteins. In collaboration with academic experts and in partnership with Abcam and BioLegend, MJFF has sponsored the custom generation and independent validation of several monoclonal antibodies targeting both total and phosphorylated PD-relevant Rab proteins. The Rab superfamily of proteins function generally in membrane trafficking, and a subset of Rab family members have been identified as key phosphorylation substrates of LRRK2 and PINK1 kinase activity. The ability to detect and visualize these proteins under endogenous conditions would provide us with the opportunity to understand the role of Rabs in PD biology and test their utility as PD-relevant biomarkers. Herein we discuss the general MJFF antibody generation strategy and provide characterization data for ongoing custom antibody development projects, as well as antibody pipeline updates and commercial launch timelines for MJFF's cumulative Rab antibody collection. Ultimately, these MJFF-sponsored antibody projects aim to address field-wide challenges in the PD preclinical tools and reagents landscape and to overall accelerate Parkinson's disease research.

Data Highlights for Antibodies in Development



More Information

Investigators can learn more about research tools and preclinical models for Parkinson's disease by visiting the MJFF Research Tools Catalog at www.michaeljfox.org/toolscatalog. This Tools Catalog contains a list of all of the MJFF-generated research tools which have undergone extensive characterization and validation to ensure high-quality, as well as additional resources for investigators such as information on preclinical models for PD research. Questions regarding the MJFF preclinical tools program can be sent to tools@michaeljfox.org.

Antibody	Host	Clone	Species	Stage	Use	Notes	CRO	Availability
pT72 Rab8	Rabbit	25-2	Hu, Ms	Available	IB, IP	Cross-reacts with pRab 3, 10, 35 & 43. Detects endogenous	Abcam	Available (ab230260)
pS111 Rab8	Rabbit	TBD	Hu, Ms	Recombinant Cloning	IB, IF	Detects endogenous	Abcam	Mid 2019
pT73 Rab10	Rabbit	108-10	Hu, Ms	Available	IB, IP	Selective	Abcam	Available (ab230261)
		22-5	Hu, Ms	Launching	IB, IF	Selective. Detects endogenous	Abcam	Early Nov
pS106 Rab12	Rabbit	9-1	Hu, Ms	Recombinant Screening	IB, IP	Selective. Detects endogenous	Abcam	Early 2019
pT71 Rab29	Rabbit	17-1	Hu	Launching	IB	Selective (Endogenous not yet detected)	Abcam	Early Nov
pT72 Rab35	Rabbit	TBD	Hu, TBD	Antigen Generation	TBD	Project in very early stages.	Abcam	Late 2019

Table 1. Overview of antibodies targeting phosphorylated Rab proteins. Host species, clone ID, species reactivity, development stage, approved application use, additional notes, CRO partner, and availability information is listed. Please note that the species reactivity and approved application use are verified but antibodies still in development may be approved for additional species/use with additional tests prior to launch. (Abbreviations: Hu, human; Ms, mouse; IB, immunoblotting; IP, immunoprecipitation; IF, immunofluorescence).

Antibody	Host	Clone	Species	Stage	Use	Notes	CRO	Availability
Total Rab8A	Rabbit	74-3	Hu, Ms, Rt	Available	IB, IP	Selective. C-terminal epitope (AA190-196)	Abcam	Available (ab237702)
	Rabbit	79-3	Hu, Ms	Launching	IB, IF	Selective	Abcam	Early Nov
Total Rab10	Mouse	TBD	Hu	Hybridoma Screening	IB	Selective	BioLegend	Mid 2019
	Rabbit	32-5	Hu, Ms, Rt	Available	IB, IP, IF, FC	Selective. C-terminal epitope (AA185-193)	Abcam	Available (ab237703)
Total Rab12	Mouse	605B11	Hu, Ms	Available	IB	Selective. Central epitope (AA127-133)	nanoTools	Available (0680-100)
	Rabbit	TBD	Hu	Subclone Screening	IB, IF	Early indication of good clone	Abcam	Early 2019
Total Rab29	Mouse	TBD	Hu	Subclone Screening	IB	Early Stages	BioLegend	Mid 2019
	Rabbit	104	Hu	Recombinant Screening	IB, IP, IF	Best clone for IB	Abcam	Early 2019
Total Rab35	Rabbit	124	Hu, Ms	Recombinant Screening	IB, IP	Less ideal clone for IF	Abcam	Early 2019
	Mouse	TBD	Hu	Immunization	IB	Early Stages	BioLegend	Late 2019
Total Rab35	Rabbit	TBD	Hu, TBD	Antigen Generation	TBD	Project in very early stages	Abcam	Late 2019

Table 2. Overview of antibodies targeting total Rab proteins. Host species, clone ID, species reactivity, development stage, approved application use, additional notes, CRO partner, and availability information is listed. Please note that the species reactivity and approved application use are verified but antibodies still in development may be approved for additional species/use with additional tests prior to launch. (Abbreviations: Hu, human; Ms, mouse; Rt, rat; IB, immunoblotting; IP, immunoprecipitation; IF, immunofluorescence; FC, flow cytometry).