

Supplementary Table 1. Immune checkpoint inhibitors.

Names	Types	Trade name & company	Year approved	by
Ipilimumab	Anti-CTLA-4	Yervoy, Squibb	2011	FDA
Nivolumab	Anti-PD-1	Opdivo, Squibb	2015	
Pembrolizumab	Anti-PD-1	Keytruda, Merck & Co	2015	
Atezolizumab	Anti-PD-L1	Tecentriq, Roche	2016	
Durvalumab	Anti-PD-L1	Imfinzi, AstraZeneca	2017	

FDA: US Food and Drug Administration; CTLA-4: Cytotoxic T lymphocyte associated antigen-4; PD-1: Programmed cell death-1; PD-L1: Programmed cell death ligand-1.

Supplementary Table 2. Characteristics of immune checkpoint inhibitors induced type 1 diabetes from published case reports and case series.

First author and year of publication	Age/sex/nationality	Type of cancer	Name or type of ICI	Time from ICI use to hyperglycemia/ ICI Cycles	DKA or not	Antibodies of type 1 diabetes
Yilmaz 2019	49/Male/ Turkey	renal cell carcinoma	Nivolumab	10 months/ 21	yes	GADA (-), IAA (-), ICA (-)
Marchand 2019	55/Male/ France	Pleomorphic carcinoma	Nivolumab	5 months/9	yes	GADA (-), IA2A (-), ZnT8A (-)
	72/Male/ France	cutaneous T-cell lymphoma	Nivolumab	2 months/3	no	GADA (-), IA2A (+), ZnT8A (-)
	69/Male/ France	lung adenocarcinoma	Durvalumab	13 months/ 13	yes	GADA (-), IA2A (-), ZnT8A (-)
	83/Male/ France	melanoma	Pembrolizumab	2.5 months/4	no	GADA (-), IA2A (-), ZnT8A (-)
	65/Male/ France	melanoma	Pembrolizumab	8.5 months/ 12	yes	GADA (-), IA2A (-), ZnT8A (-)
	65/Female / France	melanoma	Nivolumab, Ipilimumab	3 months/5	yes	GADA (-), IA2A (-), ZnT8A (-)
	Hakami 2019	52/Male/ Ireland	melanoma	Pembrolizumab	23 weeks/7	yes
Li 2018	67/Male/ China	non-small-cell lung cancer	Pembrolizumab	2.5 months/3	yes	GADA (-), IAA (-), ICA (-)
Humayun 2016	55/Male/ UK	melanoma	Pembrolizumab Ipilimumab	unknown/9	yes	GADA (-), ICA (-)
Gaudy 2015	44/Female /France	melanoma	Pembrolizumab ipilimumab	unknown/2	yes	GADA (-), IA2A (-)
Hughes 2015	64/Female /USA	melanoma	Pembrolizumab	<1 month/ unknown	yes	GADA (-), IAA (-), ICA (-)
	55/Female /USA	melanoma	Nivolumab, ipilimumab	5 months/ unknown	yes	GADA (-), IAA (-), ICA (-)
	83/Female /USA	non-small-cell lung cancer	Nivolumab	<1 month/ unknown	yes	GADA (+)

	63/Male/ USA	renal cell carcinoma	Nivolumab	4 months/ unknown	no	GADA (+), ICA (+), IAA (+)
	58/ Male/USA	small-cell lung carcinoma	Nivolumab	1 week/ unknown	yes	GADA (+)
Chae 2017	76/Male/ USA	non-small- cell lung cancer	Pembrolizum ab	50 days/2	no	GADA (+), IA2A (+), IAA (-), ICA (-)
Hansen 2016	58/Male/ USA	melanoma	Pembrolizum ab, ipilimumab	13 months/ 17	no	GADA (+), ICA (-)
Martin-Libe ral 2015	54/Female /USA	melanoma	Pembrolizum ab, ipilimumab	unknown/7	yes	GADA (+)
Bastin 2019	51/Female / France	non-small- cell lung cancer	Nivolumab	2 months/ unknown	yes	GADA (+), IA2A (-), ZnT8 (-)
	71/Male/ France	non-small- cell lung cancer	Nivolumab	7 months/ unknown	unkn own	GADA (-), IA2A (-), ZnT8 (-)
	61/Female / France	non-small- cell lung cancer	Nivolumab	2 months/ unknown	yes	GADA (-), IA2A (-), ZnT8 (-)
Sakaguchi 2019	68/Female /Japan	melanoma	Nivolumab	60 weeks/27	yes	GADA (-), ICA (-), IAA (-), IA2A (-), ZnT8 (-)
Venetsaki 2019	71/unkno wn/ Greece	non-small- cell lung cancer	Nivolumab	110 months/ unknown	no	GADA (-), ICA (-)
Mellati 2015	70/Male/ USA	lung cancer	Anti-PD-L1	15 weeks/5	yes	GADA (-), IAA (-)
	66/Female / USA	Sarcomato id squamous cell carcinoma	Anti-PD-L1	7 weeks/3	yes	GADA (-), IAA (-), IA2A (-), ZnT8 (-)
Kong 2016	68/Male/K orea	lung squamous cell carcinoma	Pembrolizum ab	21 weeks/7	yes	GADA (-), IAA (-), ICA (-)
Lowe 2016	55/Male/ USA	melanoma	Nivolumab, ipilimumab	4 months/3	yes	GADA (+)
Miyoshi	66/Female	melanoma	Nivolumab	121 days/6	yes	GADA (-), IAA

2016	/Japan						(-), IA2A (-), ZnT8 (-)
Okamoto 2016	55/Female / Japan	melanoma	Nivolumab	12 months/ unknown	ketonuria		GADA (-), IAA (-), IA2A (-), ZnT8 (-)
Alhusseini 2017	65/Male/ USA	non-small-cell lung cancer	Pembrolizumab ipilimumab	<1 month/ unknown	yes		GADA (+), ICA (-), IAA (-)
Hofmann 2016	70/ Female/ Germany	melanoma	Nivolumab	6 weeks/ unknown	no		GADA (-), IA2A (-)
	58/Female /Germany	melanoma	Pembrolizumab	3 weeks/2	no		GADA (-), IA2A (-)
	78/Female /Germany	melanoma	Nivolumab, ipilimumab	3 weeks/2	yes		GADA (+), IA2A (-)
Godwin 2017	34/Female /USA	non-small-cell lung cancer	Nivolumab	1 month/2	yes		GADA (+), IA2A (+), IAA (+)
Ishikawa 2017	54/Female /Japan	melanoma	Nivolumab	unknown/17	unknown		GADA (-), IA2A (-)
Li 2017	63/Male/ USA	melanoma	Nivolumab	27 days/1	yes		GADA (+)
Munakata 2017	72/Male/ Japan	Hodgkin's lymphoma	Nivolumab	71 days/6	no		GADA (-), IAA (-), ZnT8 (-)
Teramoto 2017	63/Female / Japan	melanoma	Nivolumab	unknown/8	yes		GADA (-), IA2A (-), IAA (-)
Usui 2017	31/Male/ Japan	non-small-cell lung cancer	Nivolumab	13 days/1	yes		GADA (+)
	62/Female /Japan	non-small-cell lung cancer	Nivolumab	unknown/4	unknown		GADA (-)
Gauci 2017	73/Male/ France	melanoma	Nivolumab	6 weeks/3	yes		GADA (+), IA2A (+), ZnT8 (+)
Araújo 2017	73/Female /USA	non-small-cell lung cancer	Nivolumab	26 days/2	yes		GADA (+), IAA (-)
Hickmott 2017	57/Male/ UK	Urothelial carcinoma	Atezolizumab	unknown/5	yes		GADA (-), ICA (-)
Smith-Cohn 2017	61/Female /USA	cholangiocarcinoma	Pembrolizumab	3 months/6	yes		GADA (+), IA2A (-), IAA (-), ZnT8 (-)
Lanzolla 2019	60/Male/ Italy	lung adenocarc	Atezolizumab	unknown/2	yes		GADA (-), IA2A (-)

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Maamari 2019	47/Female /USA	cardiac sarcomas	Pembrolizum ab	3weeks/2	yes	GADA (+), ICA (-)	
Lee 2018	67/Male/ Australia	non-small-cell lung cancer	Nivolumab	2 weeks/1	yes	GADA (+), IA2A (-), ZnT8 (-)	
Chokr 2018	61/Male/ USA	melanoma	Nivolumab, ipilimumab	unknown/3	yes	GADA (-), ICA (-), IAA (-), IA2A (-), ZnT8 (-)	
Zaied 2018	unknown/ Male/ USA	renal carcinoma	Nivolumab	unknown/3	yes	GADA (-)	
Shiba 2018	80/Female / Japan	melanoma	Nivolumab, ipilimumab	16 months/ 20	no	GADA (-), IA2A (-)	
Okahata 2019	52/Female / Japan	breast cancer	Nivolumab	unknown/10	no	GADA (-), IA2A (-)	
Kotwal 2019	unknown/ USA	unknown	Pembrolizum ab	2.1 months/2	yes	GADA (+), IA2A (-), IAA (-)	
	unknown/ USA	unknown	Pembrolizum ab	2.2 months/1	yes	GADA (+), IA2A (-), IAA (-)	
	unknown/ USA	unknown	Pembrolizum ab	0.6 months/1	yes	GADA (+), IA2A (+), IAA (+), ZnTA (-)	
	unknown/ USA	unknown	Pembrolizum ab	4.8 months/3	no	GADA (-), IA2A (-), IAA (+), ZnTA (-)	
	unknown/ USA	unknown	Nivolumab,	5.5 months/4	unknown	unknown	
	unknown/ USA	unknown	Ipilimumab, pembrolizum ab	months/6	no	unknown	
	unknown/ USA	unknown	Pembrolizum ab	7.8 months/5	yes	GADA (-)	
	unknown/ USA	unknown	Pembrolizum ab	9.7 months/ 17	yes	GADA (-), IA2A (-), IAA (-), ZnTA (-)	
	unknown/ USA	unknown	Pembrolizum ab	23.6 months/ 16	yes	unknown	
	unknown/ USA	unknown	Pembrolizum ab	3 months/4	yes	unknown	
unknown/ USA	unknown	Pembrolizum ab	0.7 months/2	yes	unknown		
unknown/ USA	unknown	Pembrolizum ab	8.2 months/4	yes	GADA (-), IA2A (-), IAA (-), ZnTA (-)		

Stamatouli 2018	57/ Female/ USA	melanoma	Nivolumab, ipilimumab	unknown/3	unkn own	unknown
	61/Male/ USA	melanoma	Nivolumab, ipilimumab	unknown/3	unkn own	unknown
	64/Female /USA	melanoma	Pembrolizum ab	unknown/5	unkn own	unknown
	80/Female /USA	non-small- cell lung cancer	Nivolumab	unknown/20	unkn own	unknown
	67/Male/ USA	renal cell carcinoma	Nivolumab	unknown/10	unkn own	unknown
	64/Female / USA	melanoma	Nivolumab, ipilimumab	unknown/1	unkn own	unknown
	67/Male/ USA	gastrointe stinal adenocarc inoma	Nivolumab, ipilimumab	unknown/6	unkn own	unknown
	83/Male/ USA	melanoma	Ipilimumab, Pembrolizum ab	unknown/11	unkn own	unknown
	63/Female / USA	renal cell carcinoma	Atezolizumab	unknown/1	unkn own	unknown
	64/Male/ USA	non-small- cell lung cancer	Nivolumab, ipilimumab	unknown/1	unkn own	unknown
	49/Male/ USA	pancreatic cancer	Pembrolizum ab	unknown/24	unkn own	unknown
	68/Female / USA	melanoma	Nivolumab, ipilimumab	unknown/2	unkn own	unknown
	64/Male/ USA	melanoma	Nivolumab, ipilimumab, pembrolizum ab	unknown/12	unkn own	unknown
	53/Male/ USA	melanoma	Nivolumab, ipilimumab, pembrolizum ab	unknown/3	unkn own	unknown
	87/Female / USA	melanoma	Pembrolizum ab	unknown/8	unkn own	unknown
62/Male/ USA	neuroend ocrine tumor		unknown/20	unkn own	unknown	
70/Male/ USA	tongue	Pembrolizum	unknown/12	unkn	unknown	

	USA	squamous cell carcinoma	ab		own	
	64/Male/ USA	cholangiocarcinoma	Pembrolizumab	unknown/4	unkn own	unknown
	60/Male/ USA	melanoma	Nivolumab	unknown/10	unkn own	unknown
	60/Male/ USA	melanoma	Nivolumab, ipilimumab	unknown/12	unkn own	unknown
	79/Male/ USA	melanoma	Pembrolizumab	unknown/2	unkn own	unknown
	80/Male/ USA	non-small-cell lung cancer	Nivolumab	unknown/14	unkn own	unknown
Yoned 2019	63/Male/ Japan	renal carcinoma	Ipilimumab, nivolumab	5 months/9	yes	IA2A (-), IAA (-)
Harsch 2018	65/Female /Germany	hepatic cellular cancer	nivolumab	8 months/ unknown	yes	unknown
Akturk 2018	62/Male/ USA	melanoma	nivolumab	5 days/1	yes	GADA (-), IA2A (-), IAA (-), ZnT8A (-)
Kapke 2017	83/Male/ USA	Maxillary squamous cell carcinoma	nivolumab	3 months/ unknown	yes	GADA (-)
	63/Female /USA	bladder cancer	Atezolizumab	unknown/2	yes	GADA (+)
Changizzadeh 2017	42/Male/ USA	melanoma	Ipilimumab, nivolumab	unknown/3	yes	GADA (-), IA2A (-), ZnT8A (-)
Tsang 2019	59/Male/ Australia	melanoma	Ipilimumab, pembrolizumab	12 weeks/ unknown	yes	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	76/Male/ Australia	melanoma	pembrolizumab	63 weeks/ unknown	no	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	68/Male/ Australia	melanoma	pembrolizumab	30 weeks/ unknown	no	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	79/Male/ Australia	melanoma	pembrolizumab	16 weeks/ unknown	no	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	61/Male/ Australia	melanoma	Ipilimumab, nivolumab	4 weeks/ unknown	yes	GADA (-), IAA (-), IA2A (-),

	64/Male/ Australia	melanoma	Ipilimumab, nivolumab	17 weeks/ unknown	yes	ZnT8A (-) GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	45/Male/ Australia	melanoma	pembrolizum ab	12 weeks/ unknown	no	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	43/Male/ Australia	melanoma	Ipilimumab, nivolumab	24 weeks/ unknown	no	GADA (-), IAA (-), IA2A (-), ZnT8A (-)
	78/Female /Australia	melanoma	pembrolizum ab	63 weeks/ unknown	no	positive
	55/Male/ Australia	melanoma	pembrolizum ab	26 weeks/ unknown	yes	positive
Aleksova 2016	60/Male/ Australia	melanoma	Ipilimumab, pembrolizum ab	5 weeks/2	yes	GADA (-), IA2A (-)