

A case study on DNA barcoding for pet food mislabeling in South Korea

Duri Lee, Thinh Dinh Do, Jong-Won Baek, Min-Ho Mun, Hyung-Eun An, Chang-Bae Kim

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Table S1. Meat and fish ingredients of pet food products used in this study.

Brand*	Ingredients
DF1	Whitefish
DF2	Lamb Salmon Lamb lung Lamb liver
DF3	Chicken breast Chicken fat Chicken extract
DF4	Duck Duck liver
DF5	Salmon
DF6	Chicken Lamp Beef
DF7	Chicken Beef
CF1	Chicken by product meal
CF2	Chicken protein Turkey protein
CF3	Chicken Tuna

*Abbreviation: DF = Dog food; CF = Cat food.

Table S2. Species detected in pet food products by DNA barcoding.

Brand*	Label	GenBank accession number	BLAST analysis	Similarity (%)	Common name of species
DF1-1	Whitefish**	MZ097907	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-2	Whitefish	MZ097908	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-3	Whitefish	MZ097909	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-4	Whitefish	MZ097910	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-5	Whitefish	MZ097911	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-6	Whitefish	MZ097912	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-7	Whitefish	MZ097913	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-8	Whitefish	MZ097914	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-9	Whitefish	MZ097915	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-10	Whitefish	MZ097916	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-11	Whitefish	MZ097917	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-12	Whitefish	MZ097918	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-13	Whitefish	MZ097919	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-14	Whitefish	MZ097920	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-15	Whitefish	MZ097921	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-16	Whitefish	MZ097922	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-17	Whitefish	MZ097923	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-18	Whitefish	MZ097924	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-19	Whitefish	MZ097925	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF1-20	Whitefish	MZ097926	<i>Gadus chalcogrammus</i>	99.85	Alaska pollock
DF2-1	Lamp	MZ097927	<i>Ovis aries</i>	100	Sheep
DF2-2	Lamp	MZ097928	<i>Ovis aries</i>	100	Sheep
DF2-3	Lamp	MZ097929	<i>Ovis aries</i>	100	Sheep
DF2-4	Lamp	MZ097930	<i>Ovis aries</i>	100	Sheep
DF2-5	Lamp	MZ097931	<i>Ovis aries</i>	100	Sheep
DF2-6	Lamp	MZ097932	<i>Ovis aries</i>	100	Sheep
DF2-7	Lamp	MZ097933	<i>Ovis aries</i>	100	Sheep
DF2-8	Lamp	MZ097934	<i>Ovis aries</i>	100	Sheep
DF2-9	Lamp	MZ097935	<i>Ovis aries</i>	100	Sheep
DF2-10	Lamp	MZ097936	<i>Ovis aries</i>	100	Sheep
DF2-11	Lamp	MZ097937	<i>Ovis aries</i>	100	Sheep
DF2-12	Lamp	MZ097938	<i>Ovis aries</i>	100	Sheep

DF2-13	Lamp	MZ097939	<i>Ovis aries</i>	100	Sheep
DF2-14	Lamp	MZ097940	<i>Ovis aries</i>	100	Sheep
DF2-15	Lamp	MZ097941	<i>Ovis aries</i>	100	Sheep
DF2-16	Lamp	MZ097942	<i>Ovis aries</i>	100	Sheep
DF2-17	Salmon	MZ097943	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF2-18	Salmon	MZ097944	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF2-19	Salmon	MZ097945	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF2-20	Salmon	MZ097946	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF3-1	Chicken	MZ097947	<i>Gallus gallus</i>	100	Chicken
DF3-2	Chicken	MZ097948	<i>Gallus gallus</i>	100	Chicken
DF3-3	Chicken	MZ097949	<i>Gallus gallus</i>	100	Chicken
DF3-4	Chicken	MZ097950	<i>Gallus gallus</i>	99.85	Chicken
DF3-5	Chicken	MZ097951	<i>Gallus gallus</i>	99.85	Chicken
DF3-6	Chicken	MZ097952	<i>Gallus gallus</i>	99.85	Chicken
DF3-7	Chicken	MZ097953	<i>Gallus gallus</i>	99.85	Chicken
DF3-8	Chicken	MZ097954	<i>Gallus gallus</i>	99.85	Chicken
DF3-9	Chicken	MZ097955	<i>Gallus gallus</i>	99.85	Chicken
DF3-10	Chicken	MZ097956	<i>Gallus gallus</i>	99.85	Chicken
DF3-11	Chicken	MZ097957	<i>Gallus gallus</i>	100	Chicken
DF3-12	Chicken	MZ097958	<i>Gallus gallus</i>	100	Chicken
DF3-13	Chicken	MZ097959	<i>Gallus gallus</i>	100	Chicken
DF3-14	Chicken	MZ097960	<i>Gallus gallus</i>	100	Chicken
DF3-15	Chicken	MZ097961	<i>Gallus gallus</i>	100	Chicken
DF3-16	Chicken	MZ097962	<i>Gallus gallus</i>	99.85	Chicken
DF3-17	Chicken	MZ097963	<i>Gallus gallus</i>	99.85	Chicken
DF3-18	Chicken	MZ097964	<i>Gallus gallus</i>	100	Chicken
DF3-19	Chicken	MZ097965	<i>Gallus gallus</i>	100	Chicken
DF3-20	Chicken	MZ097966	<i>Gallus gallus</i>	100	Chicken
DF4-1	Chicken	MZ097967	<i>Gallus gallus</i>	100	Chicken
DF4-2	Chicken	MZ097968	<i>Gallus gallus</i>	100	Chicken
DF4-3	Chicken	MZ097969	<i>Gallus gallus</i>	100	Chicken
DF4-4	Chicken	MZ097970	<i>Gallus gallus</i>	100	Chicken
DF4-5	Chicken	MZ097971	<i>Gallus gallus</i>	100	Chicken
DF4-6	Chicken	MZ097972	<i>Gallus gallus</i>	100	Chicken
DF4-7	Chicken	MZ097973	<i>Gallus gallus</i>	100	Chicken

DF4-8	Chicken	MZ097974	<i>Gallus gallus</i>	100	Chicken
DF4-9	Chicken	MZ097975	<i>Gallus gallus</i>	100	Chicken
DF4-10	Chicken	MZ097976	<i>Gallus gallus</i>	100	Chicken
DF4-11	Chicken	MZ097977	<i>Gallus gallus</i>	100	Chicken
DF4-12	Chicken	MZ097978	<i>Gallus gallus</i>	100	Chicken
DF4-13	Chicken	MZ097979	<i>Gallus gallus</i>	100	Chicken
DF4-14	Chicken	MZ097980	<i>Gallus gallus</i>	100	Chicken
DF4-15	Chicken	MZ097981	<i>Gallus gallus</i>	100	Chicken
DF4-16	Chicken	MZ097982	<i>Gallus gallus</i>	100	Chicken
DF4-17	Chicken	MZ097983	<i>Gallus gallus</i>	100	Chicken
DF4-18	Chicken	MZ097984	<i>Gallus gallus</i>	100	Chicken
DF4-19	Chicken	MZ097985	<i>Gallus gallus</i>	100	Chicken
DF4-20	Chicken	MZ097986	<i>Gallus gallus</i>	100	Chicken
DF5-1	Salmon	MZ097987	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-2	Salmon	MZ097988	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-3	Salmon	MZ097989	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-4	Salmon	MZ097990	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-5	Salmon	MZ097991	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-6	Salmon	MZ097992	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-7	Salmon	MZ097993	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-8	Salmon	MZ097994	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-9	Salmon	MZ097995	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-10	Salmon	MZ097996	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-11	Salmon	MZ097997	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-12	Salmon	MZ097998	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-13	Salmon	MZ097999	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-14	Salmon	MZ098000	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-15	Salmon	MZ098001	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-16	Salmon	MZ098002	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-17	Salmon	MZ098003	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-18	Salmon	MZ098004	<i>Oncorhynchus gorbuscha</i>	100	Pink salmon
DF5-19	Salmon	MZ098005	<i>Oncorhynchus keta</i>	99.24	Chum salmon
DF5-20	Salmon	MZ098006	<i>Oncorhynchus keta</i>	99.24	Chum salmon
DF6-1	Chicken	MZ098007	<i>Gallus gallus</i>	100	Chicken
DF6-2	Chicken	MZ098008	<i>Gallus gallus</i>	100	Chicken

DF6-3	Chicken	MZ098009	<i>Gallus gallus</i>	100	Chicken
DF6-4	Chicken	MZ098010	<i>Gallus gallus</i>	100	Chicken
DF6-5	Chicken	MZ098011	<i>Gallus gallus</i>	100	Chicken
DF6-6	Chicken	MZ098012	<i>Gallus gallus</i>	100	Chicken
DF6-7	Chicken	MZ098013	<i>Gallus gallus</i>	100	Chicken
DF6-8	Chicken	MZ098014	<i>Gallus gallus</i>	100	Chicken
DF6-9	Chicken	MZ098015	<i>Gallus gallus</i>	100	Chicken
DF6-10	Chicken	MZ098016	<i>Gallus gallus</i>	100	Chicken
DF6-11	Chicken	MZ098017	<i>Gallus gallus</i>	100	Chicken
DF6-12	Chicken	MZ098018	<i>Gallus gallus</i>	100	Chicken
DF6-13	Lamp	MZ098019	<i>Ovis aries</i>	99.85	Sheep
DF6-14	Lamp	MZ098020	<i>Ovis aries</i>	99.85	Sheep
DF6-15	Lamp	MZ098021	<i>Ovis aries</i>	100	Sheep
DF6-16	Lamp	MZ098022	<i>Ovis aries</i>	100	Sheep
DF6-17	Lamp	MZ098023	<i>Ovis aries</i>	99.85	Sheep
DF6-18	Lamp	MZ098024	<i>Ovis aries</i>	99.85	Sheep
DF6-19	Lamp	MZ098025	<i>Ovis aries</i>	100	Sheep
DF6-20	Lamp	MZ098026	<i>Ovis aries</i>	100	Sheep
DF7-1	Chicken	MZ098027	<i>Gallus gallus</i>	100	Chicken
DF7-2	Chicken	MZ098028	<i>Gallus gallus</i>	100	Chicken
DF7-3	Chicken	MZ098029	<i>Gallus gallus</i>	100	Chicken
DF7-4	Chicken	MZ098030	<i>Gallus gallus</i>	100	Chicken
DF7-5	Chicken	MZ098031	<i>Gallus gallus</i>	100	Chicken
DF7-6	Chicken	MZ098032	<i>Gallus gallus</i>	100	Chicken
DF7-7	Chicken	MZ098033	<i>Gallus gallus</i>	100	Chicken
DF7-8	Chicken	MZ098034	<i>Gallus gallus</i>	100	Chicken
DF7-9	Chicken	MZ098035	<i>Gallus gallus</i>	100	Chicken
DF7-10	Chicken	MZ098036	<i>Gallus gallus</i>	100	Chicken
DF7-11	Chicken	MZ098037	<i>Gallus gallus</i>	100	Chicken
DF7-12	Chicken	MZ098038	<i>Gallus gallus</i>	100	Chicken
DF7-13	Chicken	MZ098039	<i>Gallus gallus</i>	100	Chicken
DF7-14	Chicken	MZ098040	<i>Gallus gallus</i>	100	Chicken
DF7-15	Chicken	MZ098041	<i>Gallus gallus</i>	100	Chicken
DF7-16	Chicken	MZ098042	<i>Gallus gallus</i>	100	Chicken
DF7-17	Chicken	MZ098043	<i>Gallus gallus</i>	100	Chicken

DF7-18	Chicken	MZ098044	<i>Gallus gallus</i>	100	Chicken
DF7-19	Beef	MZ098045	<i>Bos taurus</i>	100	Cow
DF7-20	Beef	MZ098046	<i>Bos taurus</i>	100	Cow
CF1-1	Chicken	MZ098047	<i>Gallus gallus</i>	100	Chicken
CF1-2	Chicken	MZ098048	<i>Gallus gallus</i>	100	Chicken
CF1-3	Chicken	MZ098049	<i>Gallus gallus</i>	100	Chicken
CF1-4	Chicken	MZ098050	<i>Gallus gallus</i>	100	Chicken
CF1-5	Chicken	MZ098051	<i>Gallus gallus</i>	100	Chicken
CF1-6	Chicken	MZ098052	<i>Gallus gallus</i>	99.85	Chicken
CF1-7	Chicken	MZ098053	<i>Gallus gallus</i>	99.85	Chicken
CF1-8	Chicken	MZ098054	<i>Gallus gallus</i>	99.85	Chicken
CF1-9	Chicken	MZ098055	<i>Gallus gallus</i>	99.85	Chicken
CF1-10	Chicken	MZ098056	<i>Gallus gallus</i>	100	Chicken
CF1-11	Chicken	MZ098057	<i>Gallus gallus</i>	100	Chicken
CF1-12	Chicken	MZ098058	<i>Gallus gallus</i>	100	Chicken
CF1-13	Chicken	MZ098059	<i>Gallus gallus</i>	100	Chicken
CF1-14	Chicken	MZ098060	<i>Gallus gallus</i>	100	Chicken
CF1-15	Chicken	MZ098061	<i>Gallus gallus</i>	100	Chicken
CF1-16	Chicken	MZ098062	<i>Gallus gallus</i>	100	Chicken
CF1-17	Chicken	MZ098063	<i>Gallus gallus</i>	100	Chicken
CF1-18	Chicken	MZ098064	<i>Gallus gallus</i>	99.85	Chicken
CF1-19	Chicken	MZ098065	<i>Gallus gallus</i>	99.85	Chicken
CF1-20	Chicken	MZ098066	<i>Gallus gallus</i>	99.85	Chicken
CF2-1	Chicken	MZ098067	<i>Gallus gallus</i>	100	Chicken
CF2-2	Chicken	MZ098068	<i>Gallus gallus</i>	100	Chicken
CF2-3	Chicken	MZ098069	<i>Gallus gallus</i>	100	Chicken
CF2-4	Chicken	MZ098070	<i>Gallus gallus</i>	100	Chicken
CF2-5	Chicken	MZ098071	<i>Gallus gallus</i>	100	Chicken
CF2-6	Chicken	MZ098072	<i>Gallus gallus</i>	100	Chicken
CF2-7	Chicken	MZ098073	<i>Gallus gallus</i>	100	Chicken
CF2-8	Chicken	MZ098074	<i>Gallus gallus</i>	100	Chicken
CF2-9	Chicken	MZ098075	<i>Gallus gallus</i>	100	Chicken
CF2-10	Chicken	MZ098076	<i>Gallus gallus</i>	100	Chicken
CF2-11	Chicken	MZ098077	<i>Gallus gallus</i>	100	Chicken
CF2-12	Chicken	MZ098078	<i>Gallus gallus</i>	100	Chicken

CF2-13	Chicken	MZ098079	<i>Gallus gallus</i>	100	Chicken
CF2-14	Chicken	MZ098080	<i>Gallus gallus</i>	100	Chicken
CF2-15	Chicken	MZ098081	<i>Gallus gallus</i>	100	Chicken
CF2-16	Chicken	MZ098082	<i>Gallus gallus</i>	100	Chicken
CF2-17	Chicken	MZ098083	<i>Gallus gallus</i>	100	Chicken
CF2-18	Chicken	MZ098084	<i>Gallus gallus</i>	100	Chicken
CF2-19	Chicken	MZ098085	<i>Gallus gallus</i>	100	Chicken
CF2-20	Chicken	MZ098086	<i>Gallus gallus</i>	100	Chicken
CF3-1	Chicken	MZ098087	<i>Gallus gallus</i>	100	Chicken
CF3-2	Chicken	MZ098088	<i>Gallus gallus</i>	100	Chicken
CF3-3	Chicken	MZ098089	<i>Gallus gallus</i>	100	Chicken
CF3-4	Chicken	MZ098090	<i>Gallus gallus</i>	100	Chicken
CF3-5	Chicken	MZ098091	<i>Gallus gallus</i>	100	Chicken
CF3-6	Chicken	MZ098092	<i>Gallus gallus</i>	100	Chicken
CF3-7	Chicken	MZ098093	<i>Gallus gallus</i>	100	Chicken
CF3-8	Chicken	MZ098094	<i>Gallus gallus</i>	100	Chicken
CF3-9	Chicken	MZ098095	<i>Gallus gallus</i>	100	Chicken
CF3-10	Chicken	MZ098096	<i>Gallus gallus</i>	100	Chicken
CF3-11	Chicken	MZ098097	<i>Gallus gallus</i>	100	Chicken
CF3-12	Chicken	MZ098098	<i>Gallus gallus</i>	100	Chicken
CF3-13	Chicken	MZ098099	<i>Gallus gallus</i>	100	Chicken
CF3-14	Chicken	MZ098100	<i>Gallus gallus</i>	100	Chicken
CF3-15	Chicken	MZ098101	<i>Gallus gallus</i>	100	Chicken
CF3-16	Chicken	MZ098102	<i>Gallus gallus</i>	100	Chicken
CF3-17	Chicken	MZ098103	<i>Gallus gallus</i>	100	Chicken
CF3-18	Chicken	MZ098104	<i>Gallus gallus</i>	100	Chicken
CF3-19	Chicken	MZ098105	<i>Gallus gallus</i>	100	Chicken
CF3-20	Chicken	MZ098106	<i>Gallus gallus</i>	100	Chicken

*Abbreviation: DF = Dog food; CF = Cat food.

**Whitefish is a term used for several bottom species of white-fleshed fishes, including Alaska pollock (Alaska Seafood Marketing Institute, 2016).