TABLE DR1 - OXYGEN AND STRONTIUM ISOTOPE COMPOSITION OF THE STUDIED SHARK TEETH FROM THE SWISS UPPER MARINE MOLASSE (OMM), SWITZERLAND

	Localities	Mammal zones	Material	Collection number *	$\delta^{18}O_{PO4}$ VSMOW	$\delta^{18}O_{CO3}$ VSMOW	Δ CO3-PO4	$^{87}Sr/^{86}Sr$	
Mol-1	La Molière	MN 3	*Carcharias acutissima*	MGL-90032	22.4	26.0	3.6	-	-
Mol-2	La Molière	MN 3	*Carcharias acutissima*	MGL-90033	21.9	25.5	3.5	0.708421	7
Mol-3	La Molière	MN 3	*Carcharias* sp.	MGL-90034	21.1	26.0	4.9	-	-
Mol-4	La Molière	MN 3	*Isurus desori*	MGL-90035	20.7	23.5	2.9	0.708630	8
Mol-5	La Molière	MN 3	*Carcharias* cf. *cuspidatus*	MGL-90036	10.3	20.9	10.6	0.707840	10
Mol-6	La Molière	MN 3	*Carcharias* cf. *cuspidatus*	MGL-90037	11.3	23.6	12.3	0.707812	5
Mol-7	La Molière	MN 3	*Carcharias* sp.	MGL-90038	21.1	25.2	4.1	-	-
Mol-8	La Molière	MN 3	*Carcharias* sp.	MGL-90039	21.6	-	-	0.708529	6
Ben-1	Benken	MN 3-4	*Isurus* sp.	MGL-90040	22.2	23.7	1.5	0.708703	4
Ben-2	Benken	MN 3-4	*Isurus hastalis*	MGL-90041	21.4	23.2	1.7	0.708681	7
Ben-3	Benken	MN 3-4	*Carcharocles* sp.	MGL-90042	20.9	23.6	2.8	0.708808	9
Ben-4	Benken	MN 3-4	*Carcharias* sp.	MGL-90043	20.2	23.7	3.5	0.709017	5
Ben-5	Benken	MN 3-4	*Carcharias* sp.	MGL-90044	20.4	-	-	-	-
Ben-6	Benken	MN 3-4	*Carcharias* sp.	MGL-90045	21.0	-	-	-	-
Ben-7	Benken	MN 3-4	*Carcharias* sp.	MGL-90046	22.2	-	-	-	-
Aub-1	Auberson	MN 3	*Isurus* sp.	MGL-90047	20.9	25.5	4.6	0.708545	6
Aub-2	Auberson	MN 3	*Isurus* sp.	MGL-90048	21.1	24.5	3.4	-	-
Aub-3	Auberson	MN 3	? *Isurus* sp.	MGL-90049	21.3	-	-	0.708553	5
Aub-4	Auberson	MN 3	? *Isurus* sp.	MGL-90050	22.2	26.3	4.1	-	-
Aub-5	Auberson	MN 3	? *Carcharias* sp.	MGL-90051	23.1	26.5	3.4	-	-
Aub-6	Auberson	MN 3	*Carcharias* sp.	MGL-90052	21.7	26.1	4.4	-	-
Aub-7	Auberson	MN 3	*Carcharias* sp.	MGL-90053	20.7	26.7	6.0	-	-
Aub-8	Auberson	MN 3	*Carcharias* sp.	MGL-90054	22.2	27.6	5.4	-	-
Aub-9	Auberson	MN 3	*Carcharocles megalodon*	MGL-90055	20.6	-	-	0.708533	6
Tav-1	Tavannes	MN 3	*Carcharias* sp.	MGL-90056	23.3	25.0	1.6	0.708479	7
Tav-2	Tavannes	MN 3	*Carcharias* sp.	MGL-90057	21.4	26.1	4.7	0.708455	4
Tav-3	Tavannes	MN 3	*Carcharias* sp.	MGL-90058	22.6	25.9	3.3	0.708531	4
Tav-4	Tavannes	MN 3	*Carcharias* sp.	MGL-90059	23.0	24.7	1.7	-	-
Tav-5	Tavannes	MN 3	*Carcharias* sp.	MGL-90060	22.7	-	-	-	-
Tav-6	Tavannes	MN 3	*Carcharias* sp.	MGL-90061	22.1	25.9	3.8	0.708563	5

* MGL - Geological museum of Lausanne, Switzerland (Musée géologie Lausanne)

TABLE DR2 - RARE EARTH ELEMENT COMPOSITION OF FIVE SHARK TEETH FROM THE LOCALITY OF LA MOLIÈRE (values reported in parts per million - ppm; en - enameloid; de - dentine)

		La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Mol-2	en	0.214	0.223	0.254	0.256	0.314	0.501	0.391	0.336	0.313	0.263	0.203	0.167	0.133	0.102
		0.445	0.430	0.486	0.513	0.727	0.870	0.890	0.762	0.682	0.596	0.453	0.395	0.323	0.258
		0.674	0.881	0.894	0.916	1.153	1.523	1.230	1.062	0.929	0.818	0.577	0.482	0.385	0.340
		0.336	0.362	0.424	0.428	0.537	0.741	0.700	0.557	0.508	0.424	0.347	0.243	0.133	0.169
		0.176	0.170	0.183	0.185	0.281	0.323	0.299	0.243	0.223	0.229	0.184	0.082	0.116	0.104
		0.394	0.405	0.455	0.471	0.695	0.820	0.758	0.656	0.567	0.546	0.420	0.310	0.215	0.225
		1.022	1.099	1.284	1.408	1.765	2.265	2.067	1.848	1.557	1.357	1.164	0.931	0.614	0.611
		0.793	0.857	0.967	1.008	1.359	1.675	1.451	1.321	1.215	0.944	0.777	0.649	0.491	0.412
	de	57.652	57.009	67.031	71.391	97.301	117.141	115.820	98.493	95.137	80.829	68.299	53.075	38.939	31.198
Mol-3	en	1.493	1.449	1.521	1.588	2.215	2.874	2.998	2.724	2.797	2.609	2.418	2.322	1.894	1.927
		0.175	0.119	0.120	0.118	0.124	0.216	0.249	0.256	0.298	0.236	0.224	0.172	0.174	0.167
		0.118	0.103	0.117	0.133	0.185	0.242	0.268	0.211	0.244	0.225	0.190	0.155	0.134	0.143
	de	12.288	13.541	15.169	15.659	21.028	27.632	24.595	20.449	19.152	15.605	12.000	8.323	5.240	4.081
Mol-5	en	0.437	0.437	0.508	0.596	0.795	0.918	0.960	0.708	0.670	0.574	0.485	0.362	0.287	0.269
		0.465	0.453	0.533	0.620	0.808	0.930	0.975	0.740	0.747	0.581	0.476	0.492	0.309	0.272
		0.355	0.357	0.425	0.477	0.637	0.661	0.682	0.530	0.478	0.435	0.406	0.352	0.230	0.237
		0.339	0.342	0.400	0.422	0.529	0.682	0.650	0.490	0.456	0.385	0.371	0.287	0.197	0.230
		0.453	0.454	0.565	0.647	0.880	1.021	1.031	0.811	0.792	0.695	0.633	0.536	0.394	0.311
		0.274	0.268	0.328	0.377	0.504	0.613	0.627	0.470	0.403	0.373	0.332	0.262	0.219	0.194
		0.434	0.464	0.515	0.578	0.798	0.919	0.874	0.672	0.690	0.582	0.515	0.427	0.348	0.310
		0.420	0.437	0.514	0.600	0.811	0.896	0.986	0.776	0.628	0.576	0.524	0.425	0.323	0.278
		0.356	0.363	0.429	0.488	0.673	0.825	0.833	0.608	0.583	0.463	0.501	0.431	0.279	0.215
	de	6.045	5.056	7.174	8.642	12.199	15.590	17.259	14.376	15.879	15.696	14.754	12.695	10.388	9.869
		5.568	4.245	5.782	7.066	9.713	12.343	14.284	12.426	13.887	14.181	13.614	11.942	9.924	9.572
Mol-6	en	0.743	0.565	0.892	1.056	1.591	2.162	2.306	1.773	1.934	1.782	1.617	1.304	1.052	0.972
		0.849	0.625	0.995	1.178	1.769	2.435	2.597	2.215	2.264	2.180	2.125	1.722	1.418	1.266
		0.902	0.726	1.026	1.201	1.873	2.212	2.466	2.123	2.163	2.072	1.906	1.568	1.299	1.202
		1.227	0.963	1.341	1.561	2.254	2.991	3.391	2.899	3.115	3.139	2.859	2.600	2.004	1.991
		1.177	0.804	1.065	1.230	1.919	2.500	3.044	2.640	3.014	3.065	3.026	2.569	2.215	1.973
	de	5.681	3.593	4.986	5.883	8.574	11.750	14.631	12.638	14.033	14.907	14.708	12.582	10.504	10.170
		6.744	4.390	6.032	7.239	10.731	14.278	18.197	15.360	17.286	18.210	17.363	14.814	12.207	11.503
Mol-8	en	0.130	0.119	0.133	0.140	0.226	0.369	0.308	0.280	0.307	0.296	0.246	0.222	0.172	0.224
		0.067	0.054	0.060	0.065	0.098	0.134	0.181	0.124	0.141	0.159	0.161	0.155	0.127	0.127
		0.155	0.133	0.148	0.165	0.264	0.411	0.458	0.427	0.556	0.550	0.532	0.536	0.518	0.536
		0.075	0.072	0.085	0.085	0.106	0.209	0.188	0.172	0.167	0.152	0.142	0.098	0.161	0.150
		0.055	0.049	0.053	0.064	0.096	0.156	0.133	0.118	0.153	0.118	0.120	0.139	0.097	0.142
	de	3.060	1.071	0.839	0.839	0.874	2.219	2.254	1.855	2.239	2.574	2.555	2.051	1.419	1.212
		3.421	1.304	1.027	1.016	1.151	2.592	2.557	2.195	2.633	3.001	2.922	2.063	1.516	1.413
		2.424	0.629	0.405	0.389	0.403	0.970	1.373	1.044	1.432	1.903	1.970	1.544	1.194	1.081
		3.178	1.155	0.905	0.915	0.998	2.391	2.395	1.960	2.434	2.665	2.640	1.934	1.401	1.286
		2.808	0.860	0.614	0.600	0.668	1.559	1.733	1.574	1.911	2.265	2.287	1.835	1.296	1.304
		2.547	1.047	0.860	0.856	0.990	2.279	2.124	1.873	2.074	2.361	2.081	1.557	1.106	1.011
		3.215	1.051	0.845	0.860	0.910	2.196	2.319	2.051	2.740	3.230	3.359	2.689	2.056	1.774