

Table 7. List of aldehydes in human body.

CAS-number	Compound name	Formula	Faeces	Urine	Breath	Skin	Milk	Blood	Saliva	Semen
<i>Aliphatic</i>										
50-00-0	formaldehyde / methanal	CH ₂ O		[197]	[6, 134, 275, 367, 370, 372, 378, 393]	[412]				
75-07-0	acetaldehyde / ethanal	C ₂ H ₄ O	[9, 216, 222, 223, 247, 248]	[194, 252, 256, 258]	[6, 134, 268, 273, 275, 278, 284, 288, 293, 301, 308, 310, 317, 322, 324, 330, 345, 370, 372, 381, 385, 393, 394, 404-406]	[410, 412]	[155]	[122, 123, 134, 141]	[110, 115, 421, 423]	
123-38-6	propanal / propionaldehyde	C ₃ H ₆ O	[9, 216, 222, 247]	[194, 256, 258]	[6, 87, 106, 134, 259, 106, 275, 279, 299, 307, 309, 311, 332, 372, 387, 393, 394, 404, 406, 407]	[178, 410]		[106, 134]	[110, 115]	

123-72-8	butanal / Butyraldehyde	C4H8O2	[9, 216, 222, 248]		[6, 39, 87, 134, 259, 274, 275, 279, 307, 309, 316, 332, 364, 372, 377, 393, 394, 404]	[410, 412]	[155, 163]	[125, 134]		[241]
110-62-3	pentanal	C5H10O	[9, 222, 247, 248]	[194, 196, 198]	[6, 57, 134, 275, 279, 286, 305, 307, 309, 310, 332, 357, 364, 370, 372, 378, 393, 394, 404, 406]	[410, 412]	[155, 163]	[125, 126, 134]	[110]	[241]
66-25-1	hexanal / Caproaldehyde	C6H12O	[9, 216, 222, 223, 247, 248]	[193, 194, 196, 198, 202, 250]	[6, 25, 50, 57, 106, 118, 134, 260, 275, 277, 279, 280, 296, 307, 309, 322, 324, 332, 352, 364, 369, 372, 374, 378, 393, 394, 403, 404, 406]	[183, 185, 189, 190, 409, 410, 412]	[153, 155, 156, 162-165, 167]	[118, 124, 126, 130, 131, 134, 416]	[110-112, 116, 118]	[241]

111-71-7	heptanal	C7H14O	[9, 223, 247]	[194, 196, 198, 202, 250]	[25, 50, 57, 134, 277, 279, 280, 307, 309, 352, 357, 369, 372, 378, 393, 394, 404, 408]	[178, 183, 185, 409, 410, 412]	[155, 156, 163, 167]	[118, 124, 131, 134, 416]	[110, 115, 116, 422]
124-13-0	octanal	C8H16O	[9, 216, 217, 247]	[194, 198, 253, 254, 256]	[6, 25, 50, 134, 275, 277, 279, 280, 282, 307, 309, 332, 372, 378, 389, 393, 394]	[176, 178, 183, 185, 187, 189, 190, 409, 410, 412]	[153, 155, 156, 162-165, 167]	[118, 124, 134, 127, 130]	[110, 111, 113, 114, 116]
124-19-6	nonanal	C9H18O	[9, 247]	[194, 202, 250, 253]	[6, 25, 50, 55, 118, 134, 261, 262, 275, 277, 279, 280, 294, 295, 307, 309, 324, 332, 343, 352, 353, 364, 369, 372, 377, 378, 393, 394, 396, 397]	[176, 178, 183, 185, 187, 189, 190, 192, 409, 410, 412]	[153, 155, 156, 162, 163]	[118, 126, 134]	[110, 111, 113, 114, 116]

112-31-2	decanal / decyl aldehyde	C10H20O	[9]	[250, 253]	[6, 39, 57, 87, 118, 134, 260, 261, 275, 279, 294, 295, 298, 307, 309, 332, 342-344, 372, 374, 378, 380, 393, 397]	[176, 178, 182, 183, 185, 187, 189, 190, 409, 412]	[155, 156, 162, 163]	[118, 124, 134]	[110, 112, 114, 118, 420]	
112-44-7	undecanal	C11H22O	[223]		[57, 118, 298]	[182, 185, 189, 190, 409]	[155]		[182, 420]	
112-54-9	dodecanal	C12H24O	[9, 222]		[61, 262, 341, 380]	[176, 178, 182, 189, 192, 409]	[155, 163]		[110, 112, 420]	
10486-19-8	tridecanal	C13H26O	[223]			[182, 189, 409]			[182, 420]	
124-25-4	tetradecanal	C14H28O	[223]			[182, 185, 409]			[111, 420]	
2765-11-9	pentadecanal	C15H30O	[222, 223]			[409]				
629-80-1	hexadecanal	C16H32O2	[223]		[292, 298]	[182, 409]			[111]	
638-66-4	octadecanal	C18H36O2	[223]							
<i>branched</i>										
78-84-2	2-methylpropanal / methylpropanal / isobutyraldehyde	C4H8O	[9, 222, 223, 248]	[194, 198, 256, 258]	[6, 275, 406]	[178, 191, 410]	[155, 162]	[125]	[111]	[241]
26140-47-6	methylbutanal	C5H10O	[223]							
590-86-3	3-methylbutanal / Isovaleraldehyde	C5H10O	[9, 222, 248]	[194, 196, 198, 202, 250, 256, 258]	[6, 60, 275, 322]	[191, 410]	[163]	[125]	[110, 111]	[241]
96-17-3	2-methylbutanal	C5H10O	[9, 248]	[194, 196, 202, 250, 256, 258]	[6, 275, 322]	[178, 410]			[110, 111]	[241]

123-15-9	2-methylpentanal	C6H12O			[408]				[110, 111]
15877-57-3	3-methylpentanal	C6H12O					[178]		
97-96-1	2-ethylbutanal	C6H12O		[258]	[364, 408]		[410]		
19269-28-4	3-methylhexanal	C7H14O	[9]		369,				
996-12-3	2,2-dimethylhexanal	C8H16O					[178]		
123-05-7	2-ethylhexanal	C8H18O			[408]				
110-41-8	2-methylundecanal	C12H24O			[378, 383]				
75853-49-5	12-methyltridecanal	C14H28O			[383]				
55019-46-0	2-methylhexadecanal	C17H34O					[178]		
<i>Unsaturated (2-x)</i>									
107-02-8	2-propenal / acrolein	C3H4O	[9]	[194]	[6, 106, 259, 274, 275, 310, 322, 346, 385, 387, 393, 404, 406]		[191, 410, 412]	[106]	[110]
123-73-9	(E)-2-butenal / (E)-crotonaldehyde	C4H6O2	[9]		[6, 275, 372, 393]	[410]	[155]		[110]
4170-30-3	2-butenal / crotonaldehyde	C4H6O2	[9]		[6, 275]		[155]		
1576-87-0	(E)-2-pentenal	C5H8O					[156, 163]		
505-57-7	2-hexenal	C6H10O		[202]	[29]		[156, 163]	[130]	[110]
6728-26-3	2-Hexenal (E)	C6H10O		[196]			[410]		
18829-55-5	(E)-2-Heptenal	C7H12O					[189]	[156]	[130] [110]
2463-63-0	2-Heptenal	C7H12O			[29]			[130]	[110]
57266-86-1	(Z)-2-Heptenal	C7H12O					[167]		
2363-89-5	2-octenal u.i	C8H14O			[40]				
2548-87-0	2-octenal, (E)-	C8H14O	[222]	[253]			[189]	[156, 162, 163]	[111, 112]
18829-56-6	2-nonenal, (E) / (E)-non-2-enal	C9H16O					[185, 189, 190, 192]	[153, 156, 162-165]	[111, 112, 118]

2463-53-8	2-nonenal	C9H16O	[253]	[29, 40]	[183]		[110, 421]
60784-31-8	2-nonenal, (Z)	C9H16O				[156, 162, 164]	
2497-25-8	2-decenal, (Z)-	C10H18O				[156, 167]	
3913-71-1	2-decenal u.i	C10H18O		[40]			
3913-81-3	2-decenal, (E)-	C10H18O			[189]	[153, 163]	
53448-07-0	2-undecenal	C11H20O		[40, 287]	[409]	[156]	
4826-62-4	2-Dodecenal	C12H22O		[40]			
7774-82-5	2-Tridecenal	C13H24O		[40]			
51534-36-2	2-tetradecenal	C14H26O		[40]			
64462-00-6	2-Pentadecenal	C15H28O		[40]			
3163-37-9	2-Hexadecenal	C16H30O		[40]			
<i>Other unsaturated linear</i>							
7319-38-2	3-butenal	C4H6O	[256, 258]				
ui	butenal ui	C4H6O			[412]		
31424-04-1	n-pentenal	C5H8O			[412]	[156]	
6789-80-6	Z-hex-3-enal	C6H10O				[153, 164]	
na	hexenal ui	C6H10O			[412]		
142-83-6	1,3-pentadiene-1-carboxaldehyde	C6H8O		[408]			
4313-02-4	(E,Z)-2,4-heptadienal	C7H10O				[156]	
4313-03-5	(E,E)-2,4-heptadienal	C7H10O				[156, 163]	
6728-31-0	Z-4-heptenal	C7H12O				[156, 164]	
929-22-6	E-4-heptenal	C7H12O				[156]	
ui	heptenal ui	C7H12O			[412]		
30361-28-5	octa-2,4-dienal / (E,E)-Octa-2,4-dienal	C8H12O				[162]	

6750-03-4	2,4-nonadienal / (E,E)-Nona-2,4-dienal / (E,Z)-2,4-nonadienal	C9H14O				[178, 189]	[156, 162, 164, 165]		[110, 112, 118]
26370-28-5	2,6-nonadienal / (E,Z)-Nona-2,6-dienal	C9H14O					[156, 162]		
30551-15-6	nonenal ui	C9H16O				[412]			
2363-88-4	2,4-decadienal / 2,4-Decadienal, (E,E)- / (E,Z)-2,4-decadienal	C10H16O		[40]			[153, 156, 162, 164]		[111, 116]
13552-96-0	(E,Z,Z)-2,4,7-Tridecatrienal <i>Unsaturated branched</i>	C13H20O					[164]		
78-85-3	2-methyl-2-propenal / methacrolein / methacrylaldehyde	C4H6O2	[9]	[194]	[6, 106, 338, 370, 372, 406]	[410]		[106]	[110]
107-86-8	3-methyl-2-butenal	C5H8O	[9]		[6]	[187, 410]			
497-03-0	2-methyl-2-butenal / trans-2-methyl-2-butenal	C5H8O	[9]	[194]	[6]	[178, 192]		[125]	[110]
922-63-4	2-Ethylacrolein / 2-Ethacrolein	C5H8O			[274]	[191]			
19780-25-7	2-Butenal, 2-ethyl-	C6H10O							[241]
5362-50-5	4-methyl-3-pentenal	C6H10O			[408]				
5362-56-1	4-methyl-2-pentenal	C6H10O							
623-36-9	2-methyl-2-pentenal	C6H10O	[9]		[408]				[110]
na	methyl pentenal	C6H12O			[291]				
1070-66-2	2-n-butylacrolein	C7H12O		[194]					
28467-88-1	2-methyl-2-hexenal	C7H12O	[9]						
645-62-5	2-ethyl-2-hexenal	C8H14O						[128]	[110]
141-27-5	geranial	C10H16O				[182]			[182, 420]
5392-40-5	3,7-dimethyl-2,6-octadienal	C10H16O				[178]			
106-23-0	citronellal	C10H18O						[163]	

123-11-5	4-methoxybenzaldehyde / p-anisaldehyde	C8H8O2			[182, 409]	[420]
57295-30-4	3-hydroxy-4-methylbenzaldehyde	C8H8O2			[178]	
121-33-5	4-hydroxy-3-methoxybenzaldehyde / vanillin	C8H8O3	[208]		[162, 164]	[114]
5973-71-7	3,4-Dimethyl-benzaldehyde	C9H10O		[250]		
104-55-2	3-phenyl-2-propenal	C9H8O	[222]			[110]
101-39-3	methylcinnamaldehyde / 2-Methyl-3-phenyl-2-propenal / α -Methylcinnamic aldehyde	C10H10O		[202, 250]		[110]
4411-89-6	alpha-ethylidenebenzeneacetaldehyde	C10H10O	[9]			
122-03-2	4-(1-methylethyl)-benzaldehyde / 4-Isopropyl benzaldehyde / cuminaldehyde / cuminal	C10H12O	[216]	[194, 250, 254]		
487-68-3	2,4,6-Trimethylbenzaldehyde	C10H12O				[118]
5445-77-2	2-methyl-3-phenylpropanal	C10H12O	[9]			
1892-21-3	5-Hydroxyindoleacetaldehyde	C10H9NO2			[45]	
51407-46-6	2-(4-tert-butylphenyl)propanal	C13H18O			[176]	
4397-53-9	4-phenylmethoxybenzaldehyde	C14H12O2			[178]	
122-40-7	pentyl cinnamaldehyde	C14H18O			[182]	[420]
80-54-6	lilial / a-methyl-b-(p-tert-butylphenyl) propanal	C14H20O			[176, 182, 189, 190, 409]	[182, 420]

101-86-0	a-hexyl cinnamaldehyde / octanal, 2- (phenylmethylene)-	C15H20O	[176, 186, 409]	
165184-98-5	(E)-2-hexyl cinnamaldehyde	C15H20O	[182]	[420]
<i>Aliphatic diols</i>				
542-78-9	propanedial / malondialdehyde	C3H4O2	[134, 310, 333, 408]	[134]
111-30-8	Glutaraldehyde	C5H8O2	[369]	
141-46-8	hydroxy aldehydes hydroxyacetaldehyde	C2H4O2	[271, 276, 310, 313, 334, 408]	
107-89-1	3-hydroxybutanal	C4H8O2	[408]	
17427-21-3	4-hydroxyhexenal / 4- hydroxy-2-hexenal	C6H10O2	[29, 271, 276, 310]	
109710-36-3	4-Hydroxyhexanal	C6H12O2	[313, 334]	
141812-70-6	6-Hydroxy-2,4-hexadienal	C6H8O2	[29]	
na	4-Hydroxy-2,6-octadienal	C8H12O2	[29, 40]	
55-88-9	4-Hydroxy-2-octenal	C8H14O2	[29]	
129047-94-5	4-Hydroxy-2,6-nonadienal	C9H14O2	[29, 40]	
75899-68-2	4-hydroxy-2-nonenal	C9H16O2	[29, 310]	
na	4-Hydroxy-2,6-decadienal	C10H16O2	[29]	
na	4-Hydroxy-2,6- undecadienal	C11H18O2	[29, 40]	
73529-66-5	4-Hydroxy-2-undecenal	C11H20O2	[40]	
126254-48-6	4-Hydroxy-2,6- dodecadienal	C12H20O2	[29, 40]	
29343-60-0	4-Hydroxy-2-dodecenal	C12H22O2	[40]	

na	4-Hydroxy-2,6-tridecadienal	C13H22O2		[40]		
29343-62-2	4-Hydroxy-2-tridecenal	C13H24O2		[40]		
na	4-Hydroxy-2,6-tetradecadienal	C14H24O2		[40]		
81335-92-4	4-Hydroxy-2-tetradecenal	C14H26O2		[40]		
na	4-Hydroxy-2,6-pentadecadienal	C15H26O2		[40]		
112147-39-4	4-Hydroxy-2-pentadecenal	C15H28O2		[40]		
na	4-Hydroxy-2,6-hexadecadienal	C16H28O2		[40]		
142449-98-7	4-Hydroxy-2-hexadecenal	C16H30O2		[40]		
3445-24-7	D-ribose	C5H8O5		[383]		
67-47-0	5-(hydroxymethyl)-2-furaldehyde / 5-(Hydroxymethyl)-2-furancarboxaldehyde	C6H6O3			[176]	[167]
90-02-8	2-hydroxybenzaldehyde / Salicylaldehyde	C7H6O2	[9]	[57, 380]		
57295-30-4	3-hydroxy-4-methylbenzaldehyde	C8H8O2			[178]	
1075-06-5	2,2-dihydroxy-1-phenylethanone	C8H8O3	[222]			
121-33-5	4-hydroxy-3-methoxybenzaldehyde / vanillin	C8H8O3	[208]		[162, 164]	[114]
1892-21-3	5-Hydroxyindoleacetaldehyde	C10H9NO2		[45]		

Ketone aldehydes

78-98-8	1,2-propanedione	C3H4O2			[408]			
1074-12-0	phenylglyoxal	C8H6O2	[222]					
<i>Ether aldehydes</i>								
10312-83-1	2-methoxyacetaldehyde	C3H6O2			[408]			
39276-09-0	furaldehyde ui	C5H4O2					[155]	
98-01-1	furfural / furaldehyde / 2-Furancarboxaldehyde	C5H4O2	[9]	[194, 196, 198, 250, 255, 256, 258]	[29, 61, 353, 364, 378, 388, 408]	[185]	[167]	[112, 118]
498-60-2	3-furaldehyde	C5H4O2	[9, 222]	[194]				
823-82-5	2,5-Furandicarboxaldehyde	C6H4O3					[167]	
26895-04-5	methyl furaldehyde	C6H6O2					[155]	
620-02-0	5-methyl-2-furancarboxaldehyde	C6H6O2	[9, 222]	[193, 194]	[408]			
134454-31-2	trans-4,5-epoxy-(E)-dec-2-enal / trans-4,5-Epoxy-(E)-2-decenal	C10H16O2					[162, 164, 165]	
<i>Carboxylic acid aldehydes</i>								
928-81-4	6-Oxohexanoic acid	C6H10O3			[44]			
na	7-Oxo-2-heptenoic acid	C7H10O3			[29]			
35923-65-0	7-Oxo-heptanoic acid	C7H12O3			[29, 44]			
na	8-Oxo-2-octenoic acid	C8H12O3			[29]			
929-48-6	8-Oxooctanoic acid	C8H14O3			[44]			
2553-17-5	9-Oxononanoic acid	C9H16O3			[44]			
5578-80-3	10-oxocapric acid / 10-Oxodecanoic acid	C10H18O3			[44]			
53163-99-8	11-Oxoundecanoic acid	C11H20O3			[44]			
3956-80-7	12-Oxododecanoic acid	C12H22O3			[44]			
<i>Aldehydes with other functional groups</i>								

3268-49-3	3-(methylthio)-propanal / methional	C4H8OS	[9]	[197, 208]	[162, 164]
5454-45-5	3-(ethylthio)propanal	C5H10OS			[408]
498-62-4	3-Thiophenecarboxaldehyde / 3-formylthiophene	C5H4OS			[341]
3760-54-1	Pyrrolidinecarboxaldehyde	C5H9NO			[272]
2591-86-8	1-Piperidinecarboxaldehyde	C6H11NO		[196]	
6665-12-9	Allysine	C6H11NO3			[41]
1192-58-1	1-methyl-(1H)-pyrrole-2- carbaldehyde / 2-formyl-1- methylpyrrole	C6H7NO			[408]
