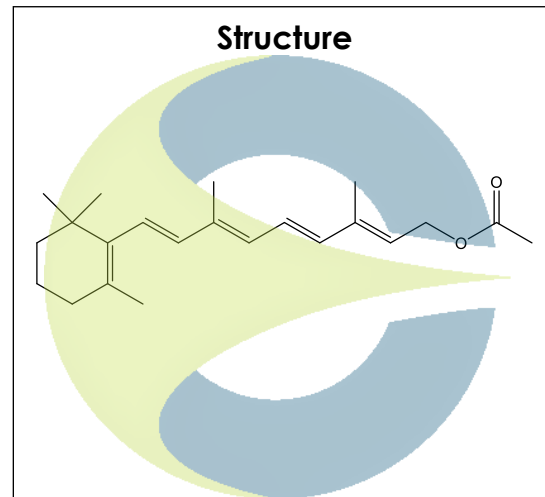


Certificate of Analysis
For Laboratory Use Only

PRODUCT NAME	Vitamin A acetate
PART NUMBER	00022713
STANDARD TYPE	Primary (P)
LOT NUMBER	00022713-14C
REPORT NUMBER	CDXA-RSS-6059-02
SAMPLE NUMBER	CDXA-14-1782
DATE OF SAMPLE	03/19/2014
DATE OF RE-EVALUATION	08/08/2018 (1 st); 07/07/2022 (2 nd)
DATE OF REPORT	07/18/2022



CHEMICAL NAMES	all-trans-Retinol acetate; Myvax; Retinol acetate; Retinyl acetate; all-trans-Vitamin A acetate; Vitamin A1 acetate
CHEMICAL FORMULA	C ₂₂ H ₃₂ O ₂
MOLECULAR WEIGHT (MW)	328.49
CHEMICAL FAMILY	Vitamins
CAS NUMBER	[127-47-9]
EC#(EINECS)	204-844-2
RTECS	VH6825000

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	98.8%
HPLC	0.700.10.2.METH72	≥ 90%	99.1%
NMR	99.1-CD-1.0-000122	Conforms to structure	Conforms to structure
Mass Spectrum	Direct Infusion, ESI (+)	Conforms	Conforms
Residual Solvent*	99.1-CD-7.0-000115	NA	DCM – 0.1%; DMF – 0.2%
Water	0.700.12.37	NA	ND
Appearance	NA	NA	Light yellow powder

ADJUSTED PURITY: 98.8% IS BASED ON (100 - 0.3 SOLVENTS - 0.0 WATER) X 99.1% HPLC

STORAGE CONDITIONS

STORAGE	+4 °C in a dry place.
EXPIRATION DATE	07/2027 under the above conditions.

This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

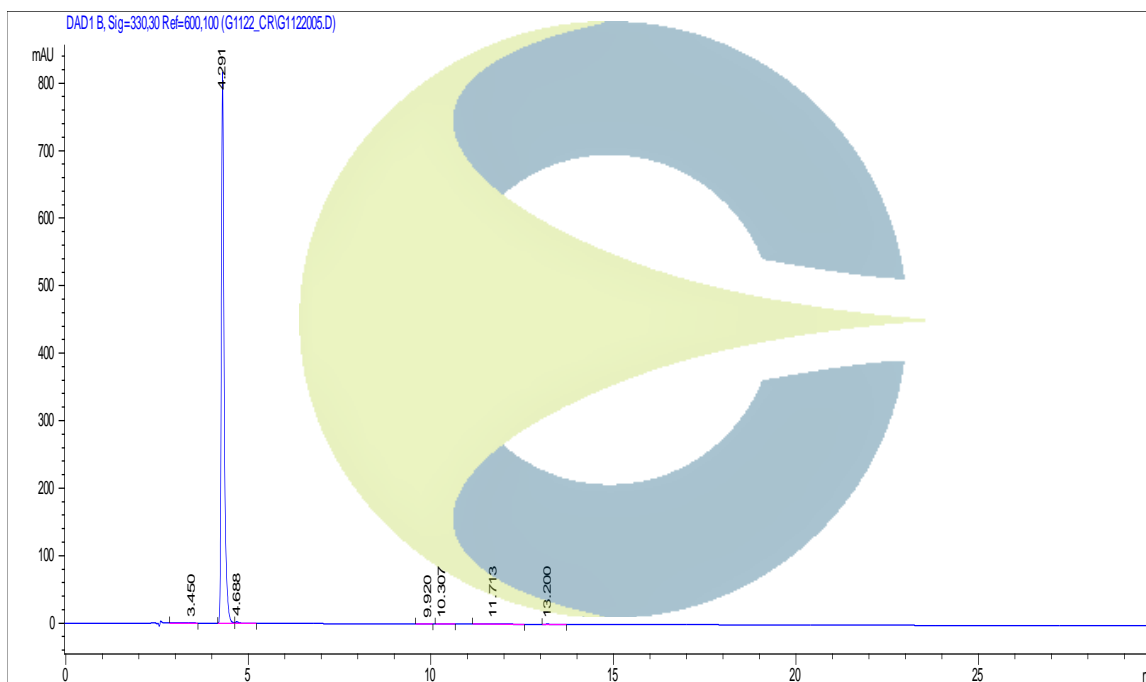
Certificate of Analysis

For Laboratory Use Only

ANALYTICAL CONDITIONS

INSTRUMENT	AGILENT 1100 HPLC UV-VIS (DAD) ; 1100 ION trap MS
COLUMN	YMC Carotenoid 250 x 4.60 mm, 3 µm particle size
MOBILE PHASE	A – MeOH:MTBE:Water (81:15:4); B – MEOH:MTBE:Water (7:90:3) Increasing from 0% B to 50% B over 25 minutes, then hold at 50% B for 4 minutes
COLUMN TEMP.	15 °C
FLOW RATE	1.2 mL/minute
INJECTION VOL.	0.5 µL
INJECTION CONC.	1.3 mg/mL in Chloroform
DETECTION	330 ± 15 nm

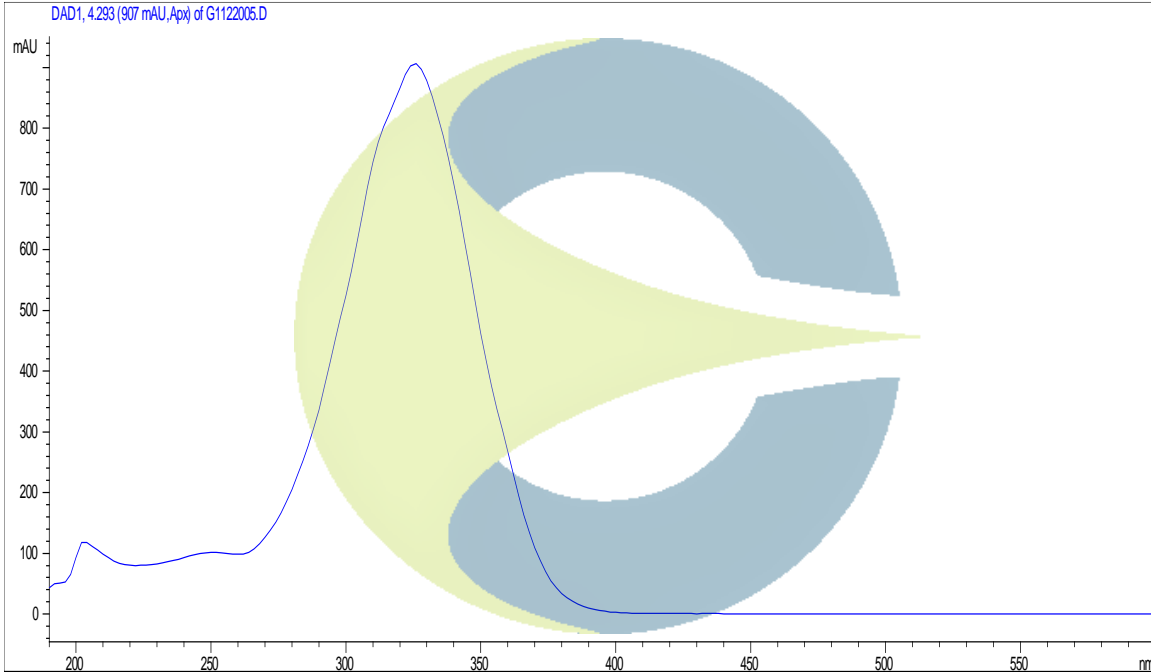
HPLC CHROMATOGRAM OF VITAMIN A ACETATE (CDXA-14-1782)



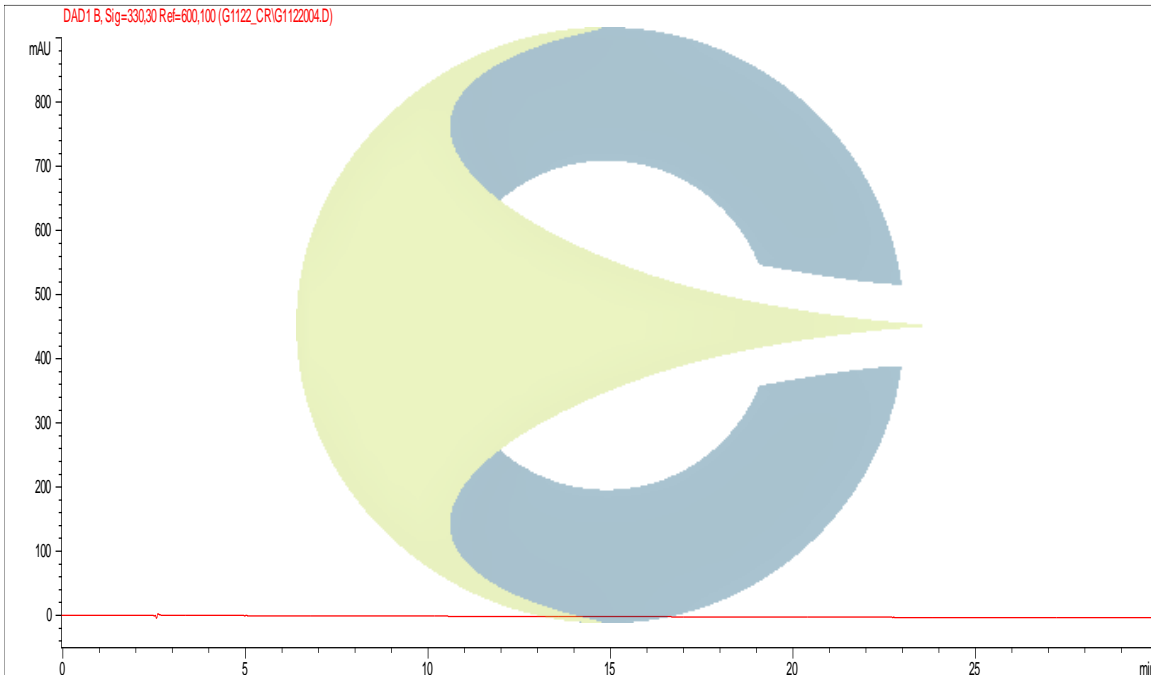
This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

Certificate of Analysis For Laboratory Use Only

UV SPECTRUM AT RT = 4.29

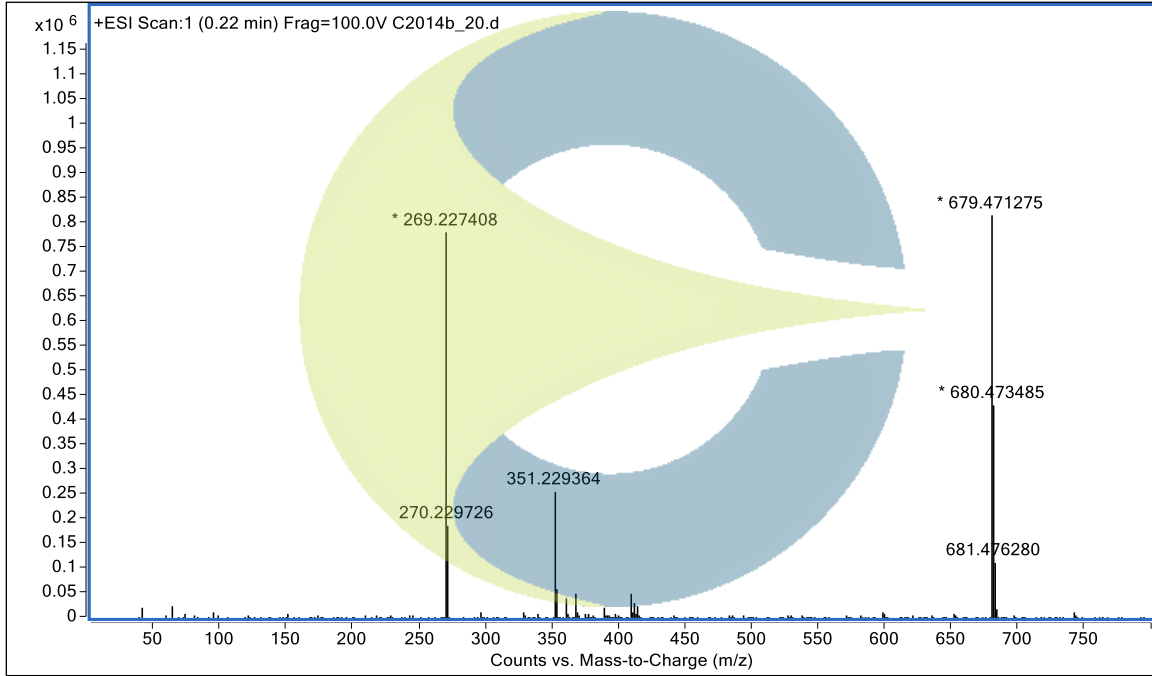


HPLC CHROMATOGRAM OF DILUENT BLANK

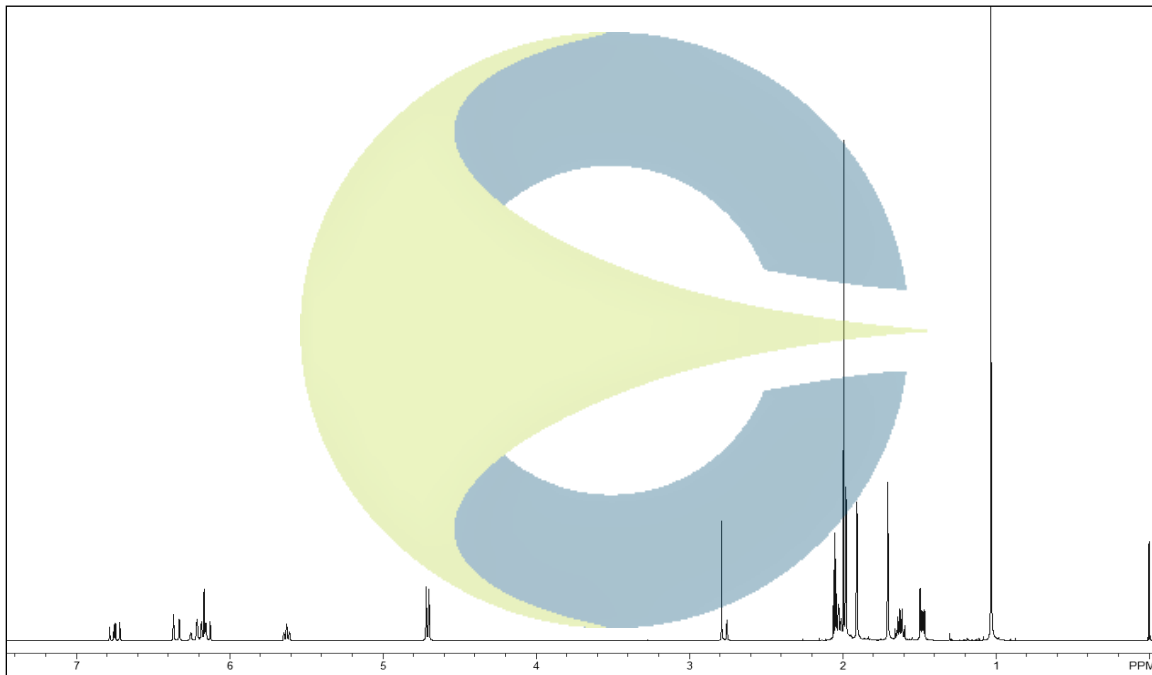


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

MASS SPECTRUM OF VITAMIN A ACETATE (CDXA-14-1782)

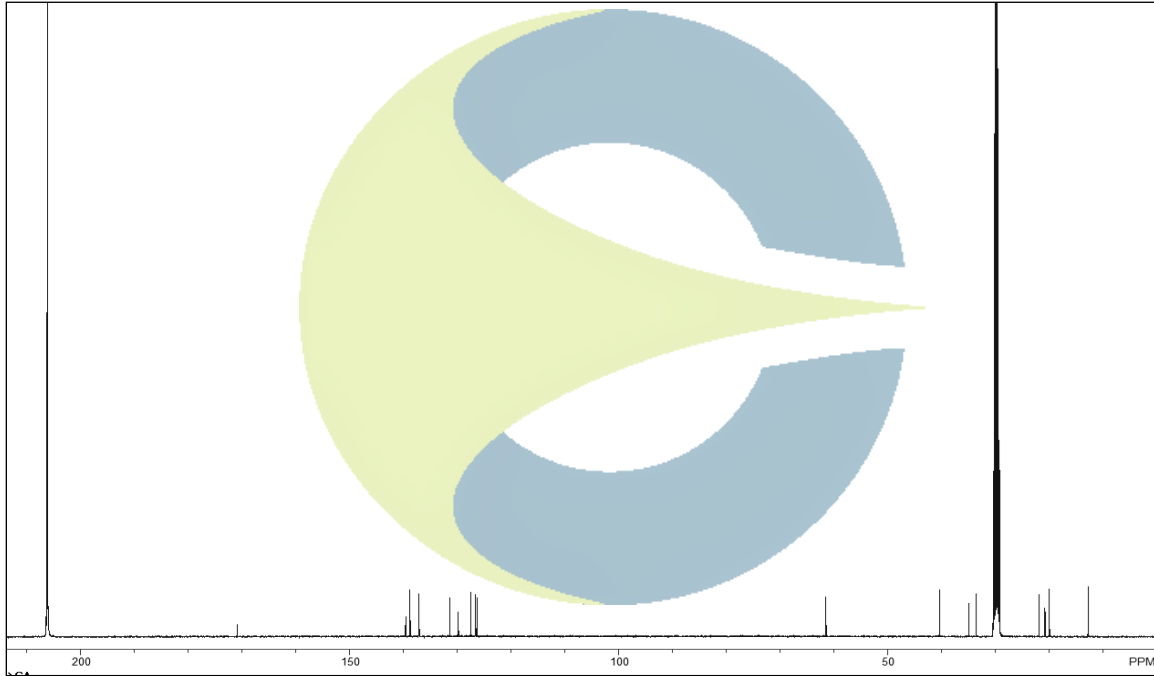


¹H-NMR SPECTRUM OF VITAMIN A ACETATE (CDXA-14-1782) IN ACETONE-d₆

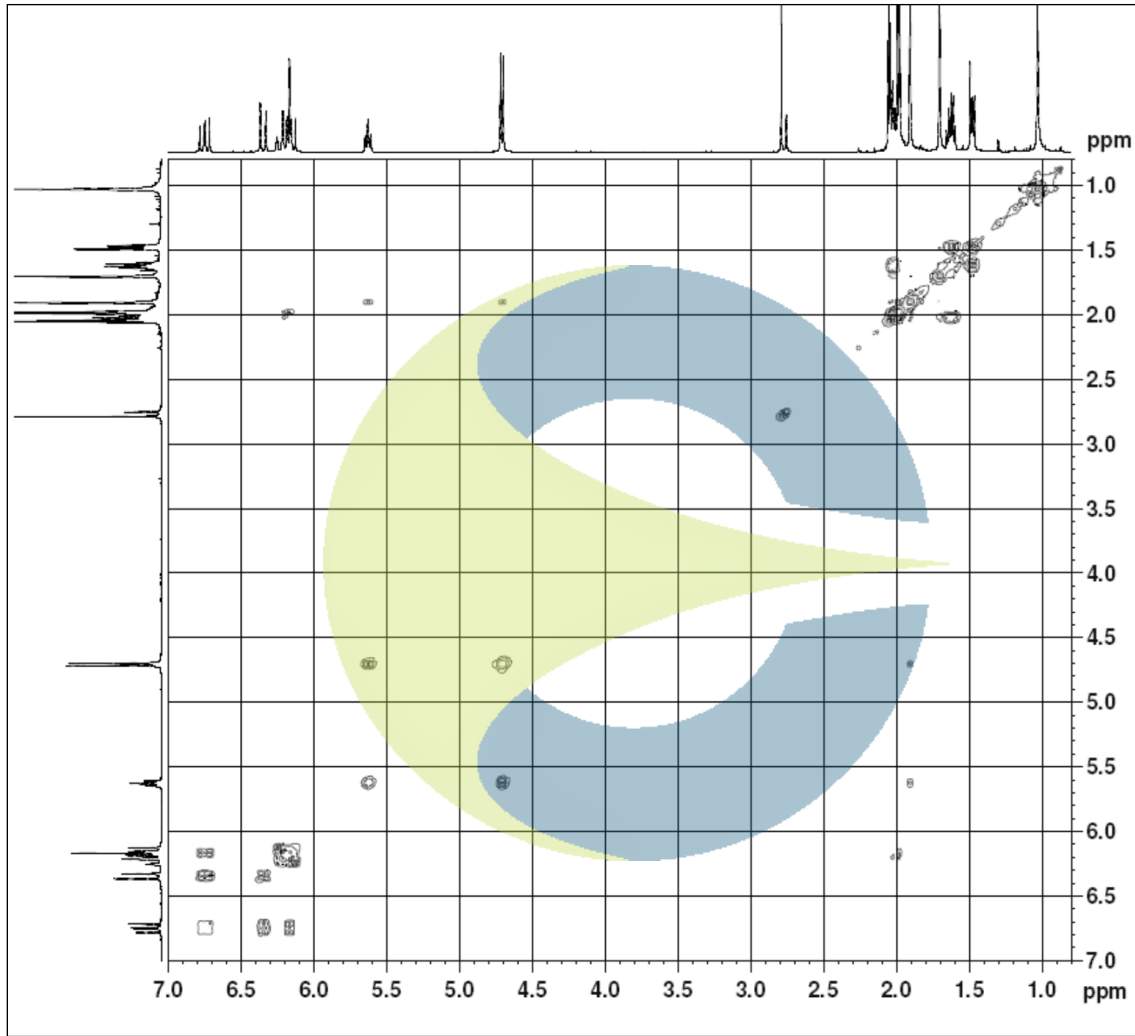


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

¹³C-NMR SPECTRUM OF VITAMIN A ACETATE (CDXA-14-1782) IN ACETONE-d₆



This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

Certificate of Analysis For Laboratory Use Only
COSY-NMR SPECTRUM OF VITAMIN A ACETATE (CDXA-14-1782) IN ACETONE-d₆

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	05/06/2014	New report
01	09/04/2018	Passed reevaluation by HPLC and KF. Updated analytical conditions, analytical results, chromatograms, and expiration date. Removed melting point.
02	07/18/2022	Passed second reevaluation by HPLC and KF. Updated analytical conditions, analytical results, chromatograms, and expiration date.

This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.