

ELISA kits available from ADI (see details at the web site)

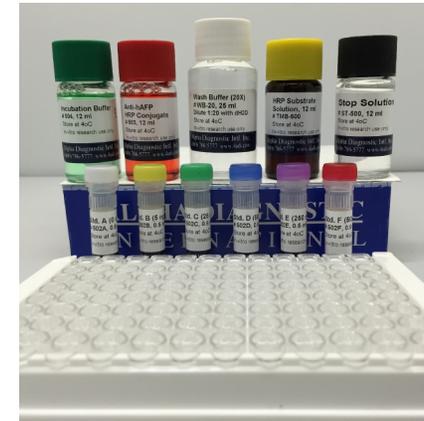
#0010	Human Leptin		
#200-120-AGH	Human globular Adiponectin (gAcrp30)		
#0700	Human Sex Hormone Binding Glob (SHBG)		
#0900	Human IGF-Binding Protein 1 (IGFBP1)		
#1000	Human C-Reactive Protein (CRP)		
#100-110-RSH	Human Resistin /FIZZ3		
#100-140-ADH	Human Adiponectin (Acrp30)		
#100-160-ANH	Human Angiogenin		
#100-180-APH	Human Angiopoietin-2 (Ang-2)		
#100-190-B7H	Human Bone Morphogenic Protein 7 (BMP-7)		
#1190	Human Serum Albumin	#1200	Human Albumin (Urinary)
#1750	Human IgG (total)	#1760	Human IgM
#1800	Human IgE	#1810	Human Ferritin
#1210	Human Transferrin (Tf)	#0020	Beta-2 microglobulin
#1600	Human Growth Hormone (GH)		
#0060	Human Pancreatic Colorectal cancer (CA-242)		
#1820	Human Ovarian Cancer (CA125)	#1830	Human CA153
#1840	Human Pancreatic & GI Cancer (CA199)		
#1310	Human Pancreatic Lipase		
#1400	Human Prostatic Acid Phosphatase (PAP)		
#1500	Human Prostate Specific Antigen (PSA)	#1510	free PSA (fPSA)
#0500	Human Alpha Fetoprotein (AFP)		
#0050	Human Neuron Specific Enolase (NSE)		
#0030	Human Insulin	#0040	Human C-peptide
#0100	Human Luteinizing Hormone (LH)		
#0200	Human Follicle Stimulating Hormone (FSH)		
#0300	Human Prolactin (PRL)		
#0400	Human Chorionic Gonadotropin (HCG)	#0410	HCG-free beta
#0600	Human Thyroid Stimulating Hormone (TSH)		
#1100	Human Total Thyroxine (T4)	#1110	Human Free T4 (ft4)
#1650	Human free triiodothyronine (ft3)	#1700	Human T3 (total)
#1850	Human Cortisol	#1860	Human Progesterone
#1865	Human Pregnenolone	#1875	Human Aldosterone
#1880	Human Testosterone	#1885	Human free Testosterone
#1910	Human Androstenedione	#1920	Human Estradiol
#1925	Human Estrone	#1940	Dihydrotestosterone (DHT)
#1950	Human DHEA-sulphate (DHEA-S)		
#3400	Human serum Neopterin		
#3000	Human Rheumatoid Factors IgM (RF)		
#3100	Human anti-dsDNA		
#3200	Anti-Nuclear Antibodies (ANA)		

Instruction Manual No. M-0500

Human Alpha-Fetoprotein (AFP)

ELISA KIT Cat. No. 0500

For Quantitative Determination of AFP In Serum



For In Vitro Research Use Only


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Human Alpha-Fetoprotein (AFP) ELISA KIT # 500

Kit Contents: (reagents for 96 tests)

C o m p o n e n t s	
Streptavidin coated microwell strip plate (96 wells). Ready-to-use, #501	1 P l a t e
AFP Standard A, 0 ng/mL, 0.5 ml# 502A	1 v i a l
AFP Standard B, 5 ng/mL, 0.5 ml# 502B	1 v i a l
AFP Standard C, 25 ng/mL, 0.5 ml# 502C	1 v i a l
AFP Standard D, 50 ng/mL, 0.5 ml# 502D	1 v i a l
AFP Standard E, 250 ng/mL, 0.5 ml# 502E	1 v i a l
AFP Standard F, 500 ng/mL, 0.5 ml# 502F	1 v i a l
Anti-hAFP-HRP Conjugate, 12 ml, #503	1 b o t t l e
Anti-AFP Biotin Reagent, 12 ml, #503B	1 b o t t l e
HRP substrate Solution, 12 ml, #TMB-500	1 b o t t l e
Wash Buffer (20X); 25 ml, dilute 1:20 with distilled water, # WB-20	1 b o t t l e
Stop solution, 12ml, # ST-500	1 b o t t l e
Complete Instruction Manual	M - 5 0 0

INTRODUCTION

AFP is a glycoprotein with a mol wt of ~65-70 kDa. It has approx. 4% carbohydrates. During fetal development, AFP is secreted at high levels and then drops to very low levels in adult life. AFP reappears in serum at high levels in malignant diseases of hepatocellular, testicular, nonseminomatosus origin, and occasionally other entodermal origin. AFP may be slightly elevated or persisted in patients with large hepatic metastases or viral hepatitis. AFP measurement is widely accepted as tumor marker and for monitoring the therapeutic effectiveness of hepatocellular and other cancer.

AFP concentration is also high in the amniotic fluid during early stages of pregnancy. AFP levels decline in the later part of the pregnancy. Elevated amniotic AFP levels are indicative of open neural tube defects (spina bifida or anencephaly) and in several fetal hemolytic diseases, omphlocele, esophageal artresia, congenital nephrosis, intrauterine death or fetal bleeding into the amniotic fluid. For diagnostic purpose, ultrasonography and acetylcholine esterase measurement should be performed in conjunction with AFP.

ADI's AFP ELISA kit is a very sensitive assay for the measurement of AFP in human serum.

PERFORMANCE CHARACTERISTICS

2. PRECISION

Intra-assay precision:

Three serum samples (mean AFP concentrations 18, 81.6, 167 IU/ml) were run in 10 replicates. The samples showed good intra-assay precision with %CV of 4.09, 3.5, and 7.8, respectively.

Inter-assay precision:

Three serum samples (15, 77, and 173.0 IU/ml) were run in duplicate in 10 independent assays. The samples showed good inter-assay precision (5.00-11.3 %CV).

3. RECOVERY

A known amount of AFP (10, 50, and 100 IU/ml) was added to three patient sera (with original AFP concentrations of 16, 53, and 138 IU/ml) and the total AFP concentrations measured. The assay showed excellent mean recoveries of about 96% (range 96-101%).

4. LINEARITY

Six different patient samples (with original AFP concentrations of 36, 66, 88, 105, 136, and 206 IU/ml) were diluted (1:2, 1:5, and 1:10) with the zero standard and their final AFP values determined. The samples showed excellent mean recoveries of about 99% (range 88-112%).

5. SPECIFICITY

The specificity of AFP ELISA kit was determined by measuring interference from high concentrations of human albumin and human Vitamin D binding protein. No interference was detected.

6. HIGH DOSE HOOK EFFECT

AFP concentration of 50,000 IU/ml did not cause any hook effect.

7. SPECIES REACTIVITY

Human AFP kit has not been tested in other species (mouse, rat, human etc).

GENERAL REFERENCES : Ruoslahti E et al (1974) Transplant Rev. 20, 30-60; Silver HKB et al (1973) PNAS 70, 526-530; Brauenstein GD et al (1973) Cancer 31, 1065-1068; McIntire KR et al (1975) Cancer Res. 35, 991-996; Silver HKB et al (1974) Cancer Res. 34, 244-247; Purves LR et al (1973) Africa Gann Monograph 14, 51-66; Bosl GJ et al (1981) Cancer 47, 328.

Citations of ADI Human AFP ELISA kit

Toietta G 2003 Molecular Therapy 7, 649-658, Human Blood
Kajiyama Y 2002 Mol. Cell. Biol. 22, 6122-6130, human albumin and AFP detection by ELISA in in cultured cells Hu7 Cells grown in 5% FCS

STORAGE AND STABILITY

The microtiter well plate and all other reagents are stable at 2-8°C until the expiration date printed on the label. The whole kit stability is usually 6 months from the date of shipping under appropriate storage conditions. The unused portions of the standards should be frozen in suitable aliquots for long-term use. Repeated freezing and thawing is not recommended.

TEST PROCEDURE (ALLOW ALL REAGENTS TO REACH ROOM TEMPERATURE BEFORE USE).

Arrange required # of strips. Remove required number of coated strips and arrange them on the plate. Store unused strips in the bag.

Dilute wash buffer (1:20) with distilled water (25 ml stock in 475 ml).

Store at 4°C until use.

1. Label or mark the microtiter well strips to be used on the plate.
2. Pipet **25 µl** of standards, controls (users supplied), and serum samples into appropriate wells in *duplicate*.
3. Add **100 µl** of Anti-AFP-biotin reagent to all wells mix for 20-30 seconds.
4. Cover the plate and **incubate at room temp. (18-25°C) for 30 minutes**.
5. Aspirate and wash the wells **3 times** with wash buffer. We recommend using an automated ELISA plate washer for better consistency. Failure to wash the wells properly will lead to high blank or zero values. If washing manually, plate must be tapped over paper towel between washings to ensure proper washing.
6. Add **100 µl** of antibody enzyme conjugate into each well. Cover the plate and **incubate at room temp. (18-25°C) for 30 minutes**.
7. Aspirate and wash the wells **3 times** with wash buffer as above.
8. **Dispense 100 µl TMB substrate per well** . Mix gently, cover the plate and **incubate for 15 min at room temp**. Positive wells will develop blue color. Note: it is possible to change the incubation time \pm 5 mins so as to get the maximum A450 of <3.00 (within the reading range of most ELISA readers).
9. Add **50 µl** stop solution into each well (blue color turns into yellow). Read absorbance at 450 nm within 30 minutes.

NOTES

Read instructions carefully before the assay. Do not allow reagents to dry on the wells. Careful aspiration of the washing solution is essential for good assay precision.

Since timing of the incubation steps is important to the performance of the assay, pipet the samples without interruption and it should not exceed 5 minutes to avoid assay drift. If more than one plate is being used in one run, it is recommended to include a standard curve on each plate. The unused strips should be stored in a sealed bag at 4°C.

Addition of the HRP substrate solution starts a kinetic reaction, which is terminated by dispensing the stopping solution. Therefore, keep the incubation time for each well the same by adding the reagents in identical sequence. Plate readers measure absorbance vertically. Do not touch the bottom of the wells.

DILUTION OF SAMPLES

Serum samples should be diluted with the Std./Sample diluent and amniotic fluid samples with normal saline. A 1:100 dilution is suggested for all amniotic fluid samples. Samples containing more than 200 IU/ml AFP must also be diluted and the results obtained should be multiplied by the appropriate dilution factor.

CALCULATION OF RESULTS

Calculate the mean absorbance for each duplicate. Draw the standard curve on linear graph paper by plotting net absorbance values of standards against appropriate AFP concentrations. Read off the AFP concentrations of the control and patient samples. If ELISA reader software is being used, we recommend 4-parameter or 5-parameter curve.

PERFORMANCE CHARACTERISTICS

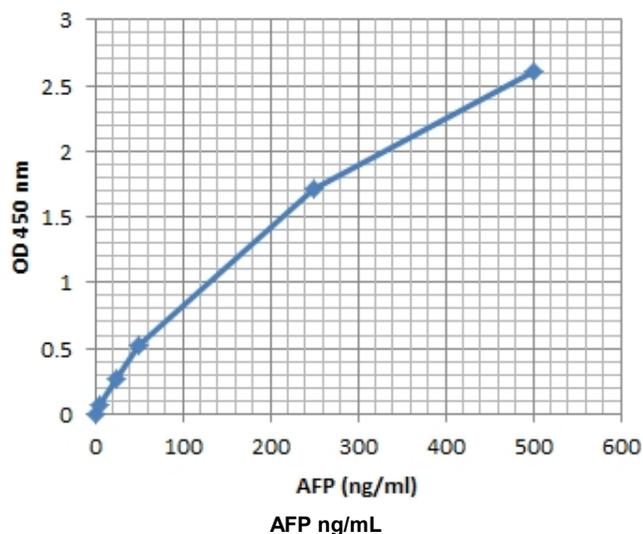
1. DETECTION LIMIT

Based on sixteen replicate determinations of the zero standard, the minimum concentration of AFP detected using this assay is 1.3 IU/ml. The detection limit is defined as the value deviating by 2 SD from the zero standard.

WORKSHEET OF TYPICAL ASSAY

Wells	Stds/samples	Net Abs.	Calculated Conc.
A1, A2	Std. A (0 ng/mL)	0.040	
B1, B2	Std. B (5 ng/mL)	0.168	
C1, C2	Std. C (25 ng/mL)	0.596	
D1, D2	Std. D (50 ng/mL)	0.983	
E1, E2	Std. E (250 ng/mL)	1.711	
F1, F2	Std. F (500 ng/mL)	2.66	
G1, G2	Sample 1		

NOTE: These data are for demonstration purpose only. A complete standard curve must be run in every assay to determine sample values. Each laboratory should determine their own normal reference values.



Kit-spec-XL

A typical std assay curve (do not use this for calculating sample values)

PRINCIPLE OF THE TEST

AFP ELISA kit is based on sequential binding of human AFP from samples to two antibodies, one immobilized on microtiter well plates, and other conjugated to the enzyme horseradish peroxidase. After a washing step, chromogenic substrate is added and colors developed. The enzymatic reaction (color) is directly proportional to the amount of AFP present in the sample. Adding stopping solution terminates the reaction. Absorbance is then measured on a microtiter well ELISA reader at 450 nm. The unknown sample values are then read-off the standard curve.

MATERIALS AND EQUIPMENT REQUIRED

Adjustable micropipet (25-100 μ l) and multichannel pipet with disposable plastic tips. Reagent troughs, plate washer (recommended) and ELISA plate Reader.

PRECAUTIONS

The Alpha Diagnostic International AFP ELISA kit is intended for *in vitro research* use only. The Control and Standards have been prepared from human sera shown to be negative for HBsAg and HIV antibodies. Nevertheless, such tests are unable to prove the complete absence of viruses, therefore, sera should be handled with appropriate precautions.

Applicable **MSDS**, if not already on file, for the following reagents can be obtained from ADI or the web site.

TMB (substrate), H₂SO₄ (stop solution), and Proclin-300 (0.1% v/v in standards, sample diluent and HRP-conjugates). All waste material should be properly disinfected before disposal. Avoid contact with the stop solution (1N sulfuric acid).

SPECIMEN COLLECTION AND HANDLING

Collect blood by venipuncture, allow to clot, and separate the serum by centrifugation at room temperature. Do not heat inactivate the serum.. If sera can not be immediately assayed, these could be stored at -20°C for up to six months. Avoid repeated freezing and thawing of samples. No preservatives should be added to the serum.

Reagent Preparation:

Dilute wash buffer (1:20) with distilled water (25 ml stock in 475 ml).