

zshoja@razi.tums.ac.ir :

( )  
( AFP  
AFP  
AFP  
WHO  
Acute Flaccid Paralysis (AFP)  
WHO (Polio free)  
( ) AFP  
AFP  
L20 Hep2 RD  
(Reverse Transcription-Polymerase Chain Reaction)  
RD,L20,Hep2 AFP  
(Neutralization Test)  
( Pan-Ev ) RT-PCR  
RD  
RT-PCR  
% RT-PCR  
AFP RT-PCR  
%  
( ) ( )

Pallenseh )

(et al. 2001; Schweighardt et al. 2001

CNS

(Rotbart et al. 2000)

(Retrograde axonal flow)

CNS

(CNS)

% /

(Pallenseh et al. 2001)

(Pallenseh et al. 2001)

Pallenseh et al. 2001; Schweighardt et al. )  
(2001

Pallenseh et al. )

(2001

(Dowdle et al. 2003)

(Minor viremia)

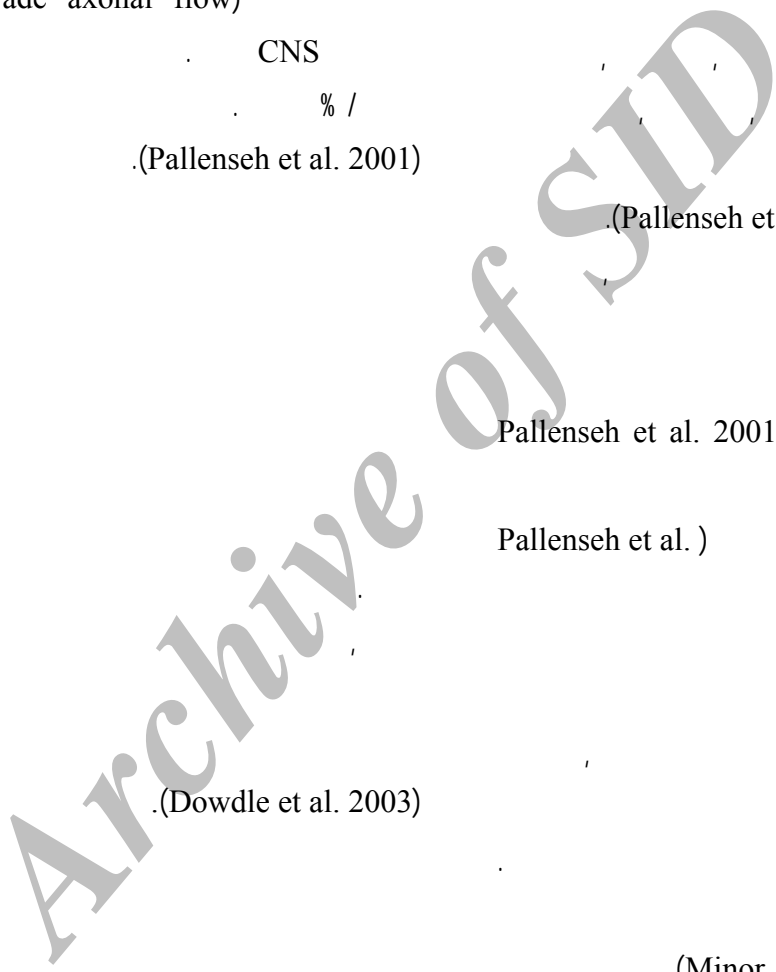
)

CNS . (

CNS

AFP

(Major viremia )



PBS

AFP

RD,L20,Hep2

( )

(Gold Standard )

(invert)

(CPE)

( )

( A

Rotbart et al. 2000; Santos)

(et al. 2003

: NT

TCID50

CPE

RT-PCR

% %

NT

RNA.

RT-PCR

(Rotbart et al. 2000; Santos et al. 2002)

RT-PCR

AFP

IgG

AFP

(RD) IgG

Pan-En RT-PCR

Pan- : RT-PCR

Polio (Extraction) AFP

Pan-En

(% / ) RT-PCR RT-PCR ( )

RT-PCR

( ) ( % ) ( ) Pan-Polio

AFP

(WHO 2004) : (RD,L20,Hep2)

AFP ,AFP

AFP ( Hep2,RD,L20)

RD

AFP ( ) Hep2 L20

AFP RD

L20 Hep2

AFP ( )

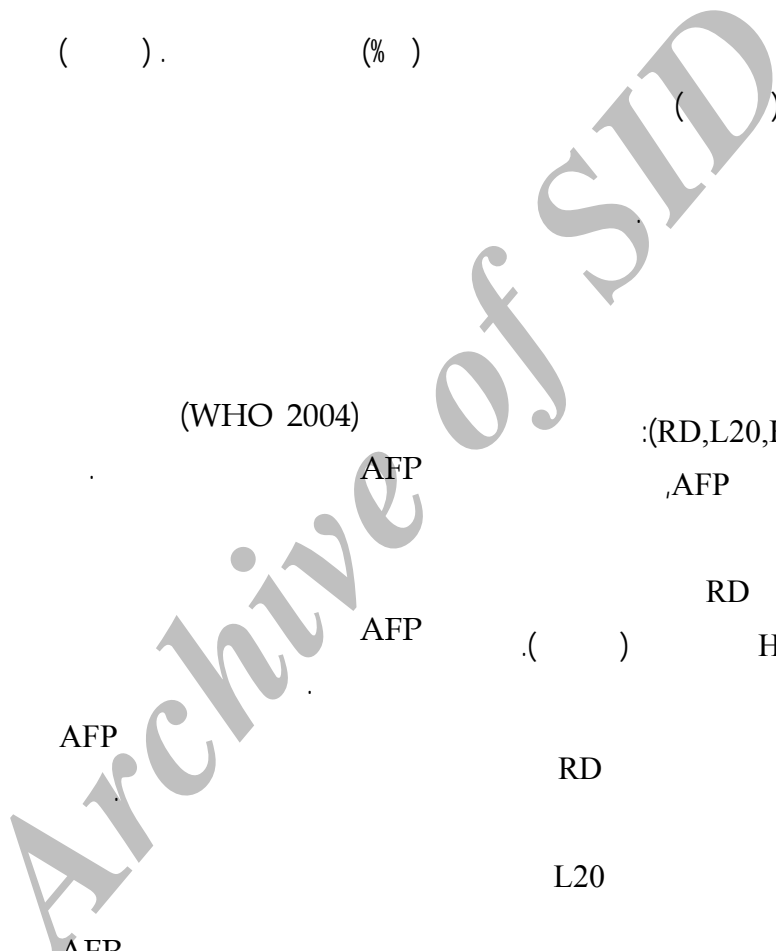
) AFP (

Hep2, L20, RD : RT-PCR

(% / ) (Extraction)

RD Pan-En RT-PCR

( % )



(Reynolds et al. 2001)

L20 Hep2 ,RD  
AFP L20  
%  
AFP

(Santos et al. 2002)

RT-PCR  
AFP  
RT-PCR  
AFP A  
Nadkarni )  
(RD) (et al. 2003  
RD L20  
(% / )  
RT-PCR  
RT- ( % / ) L20 RD Hep2  
(% ) PCR  
RT-PCR Hep2  
RT-PCR  
RT-PCR  
%  
Rotbart et al.1997; Romero )  
(1999; Santos et al. 2002 RD (WHO)  
RT-PCR L20  
% / Hep2 RD  
L20 RD  
RT-PCR Gold  
Standard

(Landry et al. 2003; Kessler et al. 1997)

Santos ) A  
et al. 2002; Ishiko et al. 2002; landry et al.  
(Inhibitors) (2003

, NT

RT-PCR

PCR

( )

Pan-Ev

Freeze-thaw

Landry et al.)

(2003; Kessler et al. 1997

AFP

RT-

RT-

Pan-Ev

PCR

%

PCR

Pan-polio

AFP

( )

RT-PCR

Chaves et al. 2001; Solomon et al. 2003; )

(Grimwood et al. 2003

RT-PCR

AFP

( )

AFP

Hep2 RD

**RT-PCR**

---

Pan-Enterovirus (PanEV)	5'-ACACGGACACCCAAAGTAGTCGGTTCC-3' 5'- TCCGGCCCCCTGAATGCGGCTAATCC-3'	114 base pairs
Pan-Poliovirus (Pan PV)	5'-TTIAIIGCRTGICCRTRTT-3' 5'-CITAITCIMGITTYGAYATG-3'	79 base pairs

---

Chomczynski 1987; WHO Manual

---

Hep2    L20    RD

---

---

Hep2    L20    RD

---

(            ) AFP

**RT-PCR**

---

/

/

RT-PCR

---

## References

- Chaves, S.S., Lobo, S., Kennett, M. and Black, J., 2001. Coxsackie virus A24 infection presenting as acute flaccid paralysis. *Lancet*. **357**(9256), p. 605.
- Chomczynski, P. and Sacchi, N., 1987. Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. *Analytical biochemistry*. **162**, pp.56-159.
- Dodle, W.R., Gourville, E.D., Kew, O.M., Pallansch, M.A. and Wood, D.J., 2003. Polio eradication: the opv paradox. Reviews in Medical Virology. **13**, pp. 277-291.
- Grimwood, K., Sue Huang, Q., Sadleir, L.G., Allan Nix, W., Kilpatrick, D.R., Oberste, M.S., and Pallansch, M.A., 2003. Acute flaccid paralysis from echovirus type 33 infection. *Journal of clinical microbiology*. **41**(5), pp.2230-2232.
- Ishoko, H., Shimada, Y.,Yonaha, Y., Hashimoto, O., Hayashi, A., Sakae, K. and Takeda, N., 2002. Molecular diagnosis of human enteroviruses by phylogeny –based classification by use of the VP4 sequence. *The journal of infectious disease*, **185**(6), pp.744–54
- Kessler, H.H., Santner, B., Rabenau, H., Berger, A., Vince, A., Lewinski, C., Weber, B., Pierer, K., Stuenzner, D., Marth, E. and Doerr, H.W., 1997. Rapid diagnosis of enterovirus infection by a new one- step revers transcription-PCR assay. *Journal of clinical microbiology*, **35**(4), pp.976-977.
- Landry, M.L., Garner, R. and Ferguson, D., 2003. Rapid enterovirus RNA detection clinical specimens by using nucleic acid sequence-based amplification. *Journal of clinical microbiology*, **41**(1), pp.346-350.
- Nadkarni, S.S. and Deshpande, J.M., 2003. Recombinant murine L20B cell line supports multiplication of group A coxsackieviruses. *Journal of medical virology*. **70**, pp.81-85.
- Pallansch, M.A. and Roos, R.P., 2001. enteroviruses:polioviruses,coxsackieviruses, echoviruses and newer enteroviruses. In : Knipe, D.M., Howley, P.M., Editors. *Fields virology*. United state America. Lippincott Williams & Wilkins.pp.723-775
- Romero, J.R., 1999. Reverse-Transcription Polymerase Chain Reaction detection of the Enteroviruses. *Archives of Pathology & Laboratory Medicine*. **123**(12), pp. 1161-1169.
- Rotbart, H.A. and Hayden, F.G., 2000. Picornavirus infections. *Archives of Family Medicine*. **9**, pp. 913-920.
- Rotbart, H.A., Ahmed, A., Hickey, S., Dagan, R., McCracken Jr, J.H., Whitley, R.J., Modlin, J.F., Cascino, M., O'Connell, J.F., Menegus, M.A. and Blum, D., 1997. Diagnosis of enteroviruses infection by polymerase chain reaction of multiple specimen types. *Pediatric Infectious Disease Journal*. **16**(4), pp.409-411.
- Santos, A.P., Costa, E.V., Oliveira, S.S., Souza, M.C.and Da Silva, EE., 2002. RT-PCR based analysis of cell culture negative stools samples from poliomyelitis suspected cases. *Journal of clinical virology*. **23**, pp. 149-152.
- Schweighardt, B. and Atwood, W.J., 2001. Virus receptors in the human central nervous system. *Journal of neurovirology*. **7**, pp.187-195.
- Solomon, T. and Willison, H., (2003) Infectious causes of acute flaccid paralysis. *Current Opinion in Infectious Diseases*. **16**, pp. 375-381.
- WHO., 2004. Polio Laboratory Manual. WHO, Geneva. Available from: [http:// www.WHO. int/ vaccines](http://www.WHO.int/vaccines)[cited 2004].