

November 6, 2018

062/2018-PRE

C I R C U L A R L E T T E R

To: B3's Market Participants – BM&FBOVESPA Segment

Re: **Treatment of Securities Lending Positions to Account for Subscription Warrant Issuance by Lupatech S.A.**

On October 29, 2018, Lupatech S.A. (company) published a notice to shareholders regarding the private issuance of subscription warrants.

Securities lending positions involving common shares in the company will be treated to account for these subscription warrants in accordance with BM&FBOVESPA Clearinghouse's Operating Procedures Manual, 6.8.3 (4).

The treatment timetable and the activities applicable to the subscription process are described below.

Date	Activity
Nov. 7, 2018	The securities lending agreements eligible to participate in the subscription process and the respective quantities of preemptive rights will be computed at close of day.
Nov. 8, 2018	Start of the period for lenders to request the return of preemptive rights to the series of subscription warrants announced by the company.
Nov. 14, 2018	End of the period for lenders to request the return of preemptive rights to the series of subscription warrants announced by the company.
Nov. 16, 2018	The price of the preemptive right to the series of subscription warrants will be computed in accordance with BM&FBOVESPA Clearinghouse's Operating Procedures Manual, 6.8.3 (4). If no preemptive rights are traded, the price will be computed in accordance with the Annex to this Circular Letter.
Nov. 22, 2018	Return of preemptive rights by borrowers to lenders.
Nov. 23, 2018	Lenders who have not received all the requested preemptive rights choose between cash settlement of these rights on the basis of the price computed on November 16, 2018, and the creation of securities lending agreements for

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Date	Activity
	the series of subscription warrants. Participants responsible for lenders must register an interest in participating in any rounds of subscription to odd lots.
Nov. 26, 2018	Cash settlement of preemptive rights not returned to lenders.
Dec. 4, 2018	Creation of securities lending agreements for subscription warrants. Cash settlement of subscription amounts in the multilateral settlement window, debiting lenders and crediting borrowers for the amount subscribed, as per the price announced by the company in the notice to shareholders published on October 29, 2018.

Securities lending agreements involving subscription warrants and created on December 4, 2018, will expire in 180 days and will not be eligible for early settlement, amendment or renewal. Once the company has announced the start of trading in subscription warrants, these agreements' expiration dates will be updated to T+4 from the start of trading in the respective warrants.

Further information can be obtained from Post-Trade Support by telephone on +55 11 2565-5000, option 3, or by email at ssp@b3.com.br.

Gilson Finkelsztain
Chief Executive Officer

Cícero Augusto Vieira Neto
Chief Operating Officer

Annex to Circular Letter 062/2018-PRE

Calculation of subscription right reference price

The following equation will be used to calculate the reference price of the subscription right:

$$W' = \text{maximum}[W - Kw, 0] \quad (1)$$

where W is the solution to equation (2)

$$W = \frac{1}{1+M} \text{Call}(S + M * W, K, T, r, \sigma) \quad (2)$$

and where:

W' is the subscription right reference price

M is the percentage of warrants

Kw is the unit value of a warrant

S is the price of a share of common stock

K is the subscription right exercise price

T is the time to exercise

r is the fixed interest rate for time T

σ is the volatility of the stock in time T

$\text{Call}(\dots)$ is the call option premium according to the Black-Scholes model

The volatility used to price subscription rights is the long-term volatility estimated by a GARCH(1,1) model with normal residuals. The following expression is assumed for returns:

$$r(t) = \sqrt{\hat{\sigma}^2(t)} z_t$$

where variance $\hat{\sigma}^2(t)$ is defined as:

$$\hat{\sigma}^2(t) = \omega + \alpha r^2(t-1) + \beta \hat{\sigma}^2(t-1)$$

Coefficients ω , α and β are estimated for the series of returns from the stock using the maximum likelihood technique. Based on the estimated parameters for the model, the long-term variance V_L of the returns is given by:

$$V_L = \frac{\omega}{1 - \alpha - \beta}$$

This long-term variance is used to compute the price of subscription rights. The square root of this variance is long-term volatility, which is adjusted for time to exercise.

$$V(T) = V_L + \frac{1 - \exp(-aT \cdot 252)}{aT \cdot 252} (\hat{\sigma}^2(t+1) - V_L)$$

where $a = \ln \frac{1}{\alpha + \beta}$. However, this is daily volatility and must be converted to annual volatility, which is given by:

$$\sigma(T) = \sqrt{252 V(T)}$$